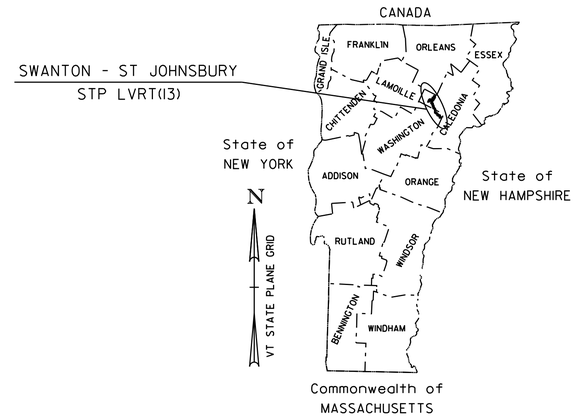
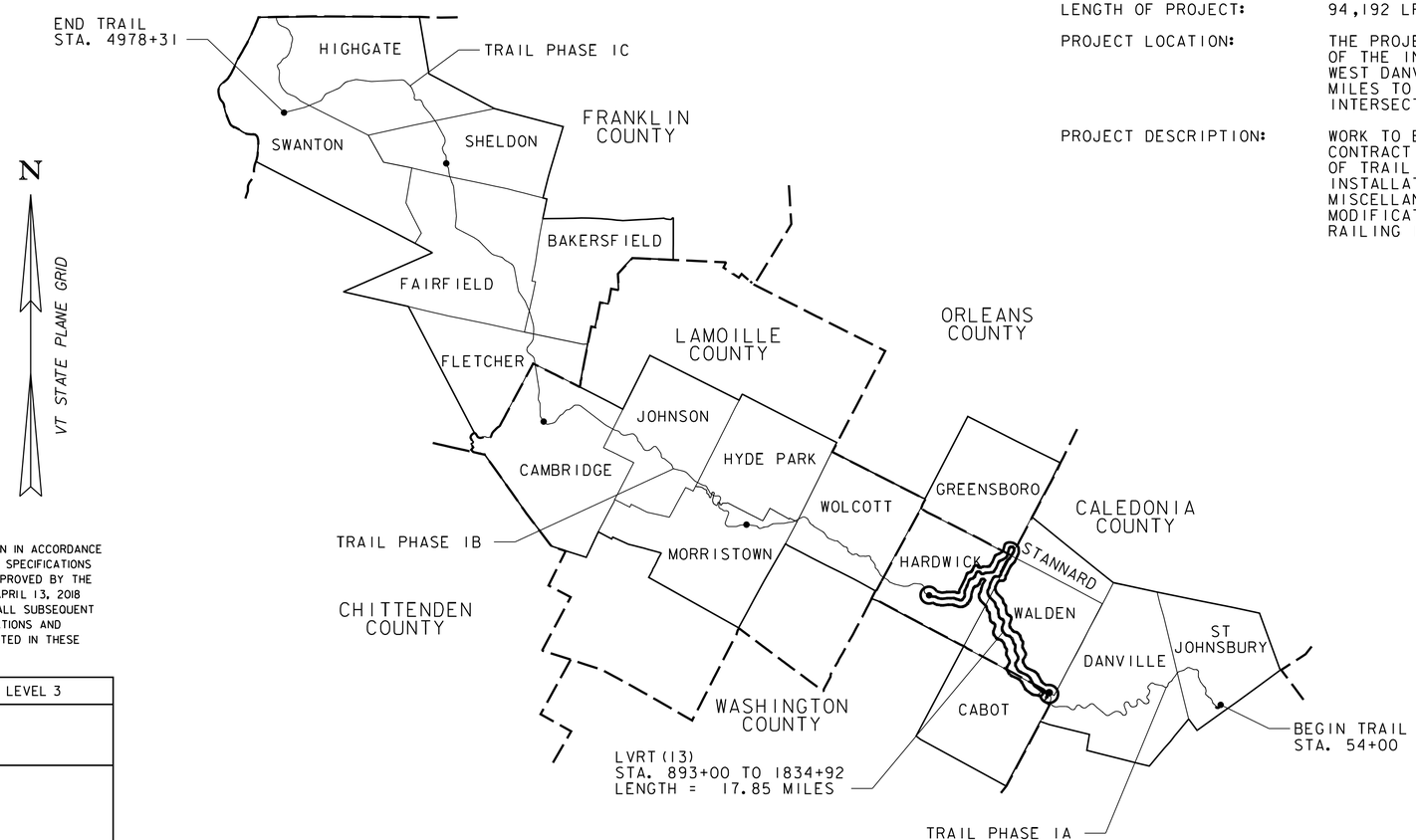
STATE OF VERMONT
AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT
LAMOILLE VALLEY RAIL TRAIL
SWANTON - ST JOHNSBURY STP LVRT(13)



LENGTH OF PROJECT:	94,192 LF (17.85 MILES)
PROJECT LOCATION:	THE PROJECT BEGINS AT THE WESTERN APPROACH OF THE INTERSECTION WITH CHANNEL DRIVE IN WEST DANVILLE AND EXTENDS WESTERLY 17.85 MILES TO THE EASTERN APPROACH OF THE INTERSECTION WITH MAPLE STREET IN HARDWICK.
PROJECT DESCRIPTION:	WORK TO BE PERFORMED UNDER THIS CONTRACT INCLUDES CONSTRUCTION OF TRAIL SURFACE, CLEARING, DITCHING, INSTALLATION OF CULVERTS, SIGNING, MISCELLANEOUS STRUCTURE REPAIRS AND BRIDGE MODIFICATIONS INCLUDING DECKING AND RAILING INSTALLATION.

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2018, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON APRIL 13, 2018 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

QUALITY ASSURANCE PROGRAM : LEVEL 3

SURVEYED BY : N/A
SURVEYED DATE : N/A

DATUM
VERTICAL ASSUMED
HORIZONTAL ASSUMED

HIGHWAY DIVISION, CHIEF ENGINEER
APPROVED Ann L. Gammell, PE DATE Jul 15, 2021

PROJECT MANAGER : JOEL PERRIGO

PROJECT NAME : SWANTON - ST. JOHNSBURY
PROJECT NUMBER : STP LVRT (13)

SHEET 1 OF 93 SHEETS

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VAOT STANDARDS

A-79	04-07-2020	RAIL TRAIL TYPICAL
E-10	04-07-2020	ROLLED EROSION CONTROL PRODUCT, TYPE I
E-11	04-07-2020	CHECK DAM, TYPE I
E-12	04-07-2020	STABILIZED CONSTRUCTION ENTRANCE
E-13	04-07-2020	INLET PROTECTION DEVICE, TYPE I
E-14	04-07-2020	INLET PROTECTION DEVICE, TYPE II
E-15	04-07-2020	SILT FENCE
E-121	8-8-1995	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD
E-131B	5-30-2003	BICYCLE GUIDE SIGN DETAILS
F-20	3-22-2017	PLANK RAIL FENCE
T-1	4-25-2016	TRAFFIC CONTROL GENERAL NOTES
T-2	04-07-2020	TRAFFIC SIGN GENERAL NOTES
T-10	8-6-2012	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING
T-17	8-6-2012	TRAFFIC CONTROL MISCELLANEOUS DETAILS
T-28	8-6-2012	CONSTRUCTION SIGN DETAILS
T-30	8-6-2012	CONSTRUCTION SIGN DETAILS
T-45	1-2-2013	SQUARE TUBE SIGN POST AND ANCHOR
T-94	2-12-2016	TOWN & COUNTY LINE SIGNS

vhb

PROJECT NAME: SWANTON - ST JOHNSBURY
PROJECT NUMBER: STP LVRT(13)

FILE NAME: z20f239_index.dgn
PROJECT LEADER: E.P. DETRICK
DESIGNED BY: B.M. ROBERTS
INDEX OF SHEETS

PLOT DATE: 4/30/2021
DRAWN BY: B.M. ROBERTS
CHECKED BY: E.P. DETRICK
SHEET 2 OF 93

GENERAL INFORMATION

SYMBOLOGY LEGEND NOTE

THE SYMBOLOGY ON THIS SHEET IS INTENDED TO COVER STANDARD CONVENTIONAL SYMBOLOGY. THE SYMBOLOGY IS USED FOR EXISTING & PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROJECT ANNOTATION, AS NOTED ON PROJECT PLAN SHEETS. THIS LEGEND SHEET COVERS THE BASICS. SYMBOLOGY ON PLANS MAY VARY, PLAN ANNOTATIONS AND NOTES SHOULD BE USED TO CLARIFY AS NEEDED.

R.O.W. ABBREVIATIONS (CODES) & SYMBOLS

POINT	CODE	DESCRIPTION
	CH	CHANNEL EASEMENT
	CONST	CONSTRUCTION EASEMENT
	CUL	CULVERT EASEMENT
	D&C	DISCONNECT & CONNECT
	DIT	DITCH EASEMENT
	DR	DRAINAGE EASEMENT
	DRIVE	DRIVEWAY EASEMENT
	EC	EROSION CONTROL
	HWY	HIGHWAY EASEMENT
	I&M	INSTALL & MAINTAIN EASEMENT
	LAND	LANDSCAPE EASEMENT
	R&RES	REMOVE & RESET
	R&REP	REMOVE & REPLACE
	SR	SLOPE RIGHT
	UE	UTILITY EASEMENT
	(P)	PERMANENT EASEMENT
	(T)	TEMPORARY EASEMENT
■	BNDNS	BOUND SET
⧈	BNDNS	BOUND TO BE SET
◎	IPNF	IRON PIN FOUND
●	IPNS	IRON PIN TO BE SET
⊠	CALC	EXISTING ROW POINT
○	PROW	PROPOSED ROW POINT
[LENGTH]		LENGTH CARRIED ON NEXT SHEET

COMMON TOPOGRAPHIC POINT SYMBOLS

POINT	CODE	DESCRIPTION
	APL	BOUND APPARENT LOCATION
	BM	BENCHMARK
	BND	BOUND
	CB	CATCH BASIN
	COMB	COMBINATION POLE
	DITHR	DROP INLET THROATED DNC
	EL	ELECTRIC POWER POLE
	FPOLE	FLAGPOLE
	GASFIL	GAS FILLER
	GP	GUIDE POST
	GSO	GAS SHUT OFF
	GUY	GUY POLE
	GUYW	GUY WIRE
	GV	GATE VALVE
	H	TREE HARDWOOD
	HCTRL	CONTROL HORIZONTAL
	HVCTRL	CONTROL HORIZ. & VERTICAL
	HYD	HYDRANT
	IP	IRON PIN
	IPIPE	IRON PIPE
	LI	LIGHT - STREET OR YARD
	MB	MAILBOX
	MH	MANHOLE (MH)
	MM	MILE MARKER
	PM	PARKING METER
	PMK	PROJECT MARKER
	POST	POST STONE/WOOD
	RRSIG	RAILROAD SIGNAL
	RRSL	RAILROAD SWITCH LEVER
	S	TREE SOFTWOOD
	SAT	SATELLITE DISH
	SHRUB	SHRUB
	SIGN	SIGN
	STUMP	STUMP
	TEL	TELEPHONE POLE
	TIE	TIE
	TSIGN	SIGN W/DOUBLE POST
	VCTRL	CONTROL VERTICAL
	WELL	WELL
	WSO	WATER SHUT OFF

THESE ARE COMMON VAOT SURVEY POINT SYMBOLS FOR EXISTING FEATURES, ALSO USED FOR PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROPOSED ANNOTATION.

PROPOSED GEOMETRY CODES

CODE	DESCRIPTION
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
CC	CENTER OF CURVE
PT	POINT OF TANGENCY
PCC	POINT OF COMPOUND CURVE
PRC	POINT OF REVERSE CURVE
POB	POINT OF BEGINNING
POE	POINT OF ENDING
STA	STATION PREFIX
AH	AHEAD STATION SUFFIX
BK	BACK STATION SUFFIX
D	CURVE DEGREE OF (100FT)
R	CURVE RADUIS OF
T	CURVE TANGENT LENGTH
L	CURVE LENGTH OF
E	CURVE EXTERNAL DISTANCE

UTILITY SYMBOLOGY

UNDERGROUND UTILITIES

- UTILITY (GENERIC-UNKNOWN)
- UT — TELEPHONE
- UE — ELECTRIC
- UC — CABLE (TV)
- UEC — ELECTRIC+CABLE
- UET — ELECTRIC+TELEPHONE
- UCT — CABLE+TELEPHONE
- UECT — ELECTRIC+CABLE+TELEP.
- G — GAS LINE
- W — WATER LINE
- S — SANITARY SEWER (SEPTIC)

ABOVE GROUND UTILITIES (AERIAL)

- UTILITY (GENERIC-UNKNOWN)
- T — TELEPHONE
- E — ELECTRIC
- C — CABLE (TV)
- EC — ELECTRIC+CABLE
- ET — ELECTRIC+TELEPHONE
- AER E&T — ELECTRIC+TELEPHONE
- CT — CABLE+TELEPHONE
- ECT — ELECTRIC+CABLE+TELEP.
- UTILITY POLE GUY WIRE

PROJECT CONSTRUCTION SYMBOLOGY

PROJECT DESIGN & LAYOUT SYMBOLOGY

- CZ — CLEAR ZONE
- PLAN LAYOUT MATCHLINE

PROJECT CONSTRUCTION FEATURES

- TOP OF CUT SLOPE
- TOE OF FILL SLOPE
- STONE FILL
- BOTTOM OF DITCH ℄
- CULVERT PROPOSED
- STRUCTURE SUBSURFACE
- PDF — PDF — PROJECT DEMARCATION FENCE
- BF — BF — BARRIER FENCE
- TREE PROTECTION ZONE (TPZ)
- STRIPING LINE REMOVAL
- SHEET PILES

CONVENTIONAL BOUNDARY SYMBOLOGY

BOUNDARY LINES

- TOWN LINE — TOWN BOUNDARY LINE
- COUNTY LINE — COUNTY BOUNDARY LINE
- STATE LINE — STATE BOUNDARY LINE
- PROPOSED STATE R.O.W. (LIMITED ACCESS)
- PROPOSED STATE R.O.W.
- STATE ROW (LIMITED ACCESS)
- STATE ROW
- TOWN ROW
- PERMANENT EASEMENT LINE (P)
- TEMPORARY EASEMENT LINE (T)
- SURVEY LINE
- P/L — PROPERTY LINE (P/L)
- SR SR SR — SLOPE RIGHTS
- 6f — 6f — 6F PROPERTY BOUNDARY
- 4f — 4f — 4F PROPERTY BOUNDARY
- HAZ — HAZ — HAZARDOUS WASTE

EPSC LAYOUT PLAN SYMBOLOGY

EPSC MEASURES

- FILTER CURTAIN
- SILT FENCE
- SILT FENCE WOVEN WIRE
- CHECK DAM
- DISTURBED AREAS REQUIRING RE-VEGETATION
- EROSION MATTING

SEE EPSC DETAIL SHEETS FOR ADDITIONAL SYMBOLOGY

ENVIRONMENTAL RESOURCES

- WETLAND BOUNDARY
- RIPARIAN BUFFER ZONE
- WETLAND BUFFER ZONE
- SOIL TYPE BOUNDARY
- T&E — THREATENED & ENDANGERED SPECIES
- HAZ — HAZ — HAZARDOUS WASTE AREA
- AG — AGRICULTURAL LAND
- HABITAT — FISH & WILDLIFE HABITAT
- FLOOD PLAIN — FLOOD PLAIN
- OHW — ORDINARY HIGH WATER (OHW)
- STORM WATER
- USDA FOREST SERVICE LANDS
- WILDLIFE HABITAT SUIT/CONN

ARCHEOLOGICAL & HISTORIC

- ARCH — ARCHEOLOGICAL BOUNDARY
- HISTORIC DIST — HISTORIC DISTRICT BOUNDARY
- HISTORIC — HISTORIC AREA
- (H) HISTORIC STRUCTURE

CONVENTIONAL TOPOGRAPHIC SYMBOLOGY

EXISTING FEATURES

- ROAD EDGE PAVEMENT
- ROAD EDGE GRAVEL
- DRIVEWAY EDGE
- DITCH
- FOUNDATION
- FENCE (EXISTING)
- FENCE WOOD POST
- FENCE STEEL POST
- GARDEN
- ROAD GUARDRAIL
- RAILROAD TRACKS
- CULVERT (EXISTING)
- STONE WALL
- WALL
- WOOD LINE
- BRUSH LINE
- HEDGE
- BODY OF WATER EDGE
- LEDGE EXPOSED

vhb

PROJECT NAME: SWANTON - ST JOHNSBURY
PROJECT NUMBER: STP LVRT(13)

FILE NAME: z20f239_legend_sheet.dgn
PROJECT LEADER: E.P. DETRICK
DESIGNED BY: VTRANS
CONVENTIONAL SYMBOLOGY LEGEND SHEET

PLOT DATE: 4/30/2021
DRAWN BY: VTRANS
CHECKED BY: VTRANS
SHEET 3 OF 93

PROJECT NOTES

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2018, AND ITS LATEST REVISIONS, THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8TH EDITION, AND ITS LATEST REVISIONS, THE AASHTO LRFD GUIDE SPECIFICATIONS FOR DESIGN OF PEDESTRIAN BRIDGES 2ND EDITION, AND MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES 2009 EDITION AND ITS LATEST REVISIONS.

2. PER AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG), PATH CROSS SLOPES SHALL NOT EXCEED 2%.

3. ALL SHARED USE PATH LONGITUDINAL RAMPS AT ROADWAY AND DRIVEWAY CROSSINGS SHALL NOT EXCEED 5%.

4. THE STRUCTURES ON THIS PROJECT ARE DESIGNED FOR H-10 LOADING UNLESS OTHERWISE NOTED.

5. THE PROPOSED TRAIL CENTERLINE SHOWN IN THE EPSC PLAN SHEETS SHALL BE CENTERED WITHIN THE EXISTING RAILROAD BED. THE STATIONED BASELINE PROVIDED IN THE PLANS IS PROVIDED FOR INFORMATIONAL PURPOSED AND IS NOT INTENDED TO REPRESENT A DESIGNED CONSTRUCTION CENTERLINE.

6. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT SILTATION OR POLLUTION, ESPECIALLY THE DISCHARGE OF RAW CONCRETE, INTO ANY BROOK, STREAM, OR RIVER. THE CONTRACTOR SHALL FOLLOW ALL EROSION AND SEDIMENT CONTROL MEASURES AS SPECIFIED IN THE EPSC SHEETS SHOWN IN THIS PLANSET. THE EPSC SHEETS SHOW THE PERMITTED EROSION AND SEDIMENT CONTROL MEASURED PER THE INDIVIDUAL CONSTRUCTION STORMWATER DISCHARGE PERMIT (INDC) FOR THIS PROJECT.

7. FEATURES SHOWN ON THE EPSC SITE PLANS HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING FEATURES AND LIMITED FIELD INVESTIGATION AND MAY NOT ACCURATELY REFLECT ACTUAL FIELD CONDITIONS. THE CONTRACTOR WILL BE RESPONSIBLE FOR MAKING FIELD MEASUREMENTS OF ALL EXISTING STRUCTURE COMPONENTS IMPACTED BY THE NEW WORK TO ASSURE CONSISTENCY WITH THE PROPOSED MODIFICATIONS. ANY DISCREPANCIES IN DIMENSIONS, CHARACTER, OR EXTENT OF THE EXISTING FEATURES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE ADVANCING THE WORK. ALL COSTS ASSOCIATED WITH THE VERIFICATION OF PROPOSED WORK SHALL BE INCLUDED IN ITEM 635.11, “MOBILIZATION/DEMOBILIZATION”.

8. ALL SOIL DEPOSITS WHICH ARE FOUND ON THE TRAIL SHALL BE REMOVED DOWN TO THE EXISTING BALLAST ELEVATION. COST SHALL BE COVERED UNDER ITEM 203.17, “UNCLASSIFIED EXCAVATION”. BALLAST SHALL THEN BE CLEANED IN ACCORDANCE WITH ITEM 900.640, “SPECIAL PROVISION (WINDROWING BALLAST)” AND CHOKED IN ACCORDANCE WITH ITEM 900.640, “SPECIAL PROVISION (CHOKING BALLAST)”. SEE TRAIL CONSTRUCTION NOTES ON TYPICAL TRAIL SECTIONS SHEET FOR ADDITIONAL DETAILS.

9. THE EXISTING STRUCTURAL STEEL MAY BE PAINTED WITH A MATERIAL THAT CONTAINS LEAD. THE CONTRACTOR SHALL FOLLOW ALL APPLICABLE REGULATIONS WHEN HANDLING AND WORKING WITH THIS STEEL. ANY REMOVED STRUCTURAL STEEL, IF APPLICABLE, IS THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE STATE AND ITS OFFICERS AND EMPLOYEES HARMLESS CONCERNING THE CONTRACTOR’S USE OR DISPOSITION OF THE REMOVED EXISTING STRUCTURAL STEEL.

10. A RETIRED TRAIN CAR IS LOCATED WITHIN THE TRAIL ALIGNMENT AT GREENSBORO BEND. THE TRAIL SHALL DEVIATE FROM THE HISTORICAL ALIGNMENT IN THIS LOCATION AND BE CONSTRUCTED WITH THE OUTSIDE EDGE OF SHOULDER ADJACENT TO THE FENCE AROUND THE TRAIN CAR. DEVIATED TRAIL ALIGNMENT SHALL FOLLOW DESIGN STANDARDS OF THE AASHTO GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES (2012, FOURTH EDITION).

TRAIL ACCESS

11. ACCESS TO THE TRAIL SHALL BE FROM PUBLIC CROSSINGS. ACCESS FROM TOWN HIGHWAYS SHALL BE PERMITTED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:
    a. WORK HOURS ARE 7AM TO 6PM MONDAY THROUGH FRIDAY.
    b. THE CONTRACTOR SHALL HAVE CONSTRUCTION SIGNAGE AND TRAFFIC CONTROL AT ACCESS POINTS WHICH MEET THE REQUIREMENTS OF THE 2009 MUTCD AND ITS LATEST REVISIONS.
    c. ROAD CLOSURES OR STOPPING TRAFFIC SHALL NOT BE PERMITTED WITHOUT PRIOR APPROVAL BY THE TOWN FOR TOWN ROADWAYS OR STATE FOR STATE ROADWAYS.
    d. THE CONTRACTOR SHALL REPAIR ANY DAMAGE TO ROADS, DITCHES, SHOULDERS, ETC. AND RESTORE THEM TO PRE-CONSTRUCTION CONDITIONS AT THE CONTRACTOR’S EXPENSE. ENGINEER TO VERIFY PRE-CONSTRUCTION CONDITIONS

TRAIL CONSTRUCTION

12. SEE TRAIL TYPICAL SECTIONS SHEETS FOR TRAIL CONSTRUCTION NOTES.

TIMBER

13. LUMBER AND TIMBER SHALL MEET THE REQUIREMENTS OF SECTION 522. TIMBER AND LUMBER PRESERVATIVES SHALL BE IN ACCORDANCE WITH SECTION 726 AND BE PENTACHLOROPHENOL: SOLVENT FOR PENTACHLOROPHENOL – HEAVY OIL HYDROCARBON SOLVENT, TYPE A.

STRUCTURE REPAIR

14. PRIOR TO THE START OF WORK, THE CONTRACTOR SHALL BE REQUIRED TO JOINTLY INSPECT THE EXISTING CONDITIONS OF THE SUBSTRUCTURES AND SUPERSTRUCTURE ELEMENTS PROPOSED TO BE REPAIRED AND/OR REHABILIATED WITH THE ENGINEER. DURING THE INSPECTION THE CONTRACTOR AND ENGINEER SHALL VERIFY AND AGREE UPON THE LIMITS OF REPAIR AND/OR REHABILITATION FOR EACH OF THE STRUCTURAL ELEMENTS. THE CONTRACTOR SHALL ALSO FIELD VERIFY EXISTING DIMENSIONS AND ACQUIRE ANY ADDITIONAL INFORMATION NEEDED TO COMPLETE THE WORK. THE INSPECTION WILL BE CONSIDERED INCIDENTAL TO ALL CONTRACT ITEMS.

15. THE REMOVAL AND DISPOSAL OF CATTLEPASS 39 SHALL BE PAID FOR UNDER ITEM 529.15, “REMOVAL OF STRUCTURE (5’ X 12’)”. THE REMOVAL OF STRUCTURE SHALL INCLUDE THE COMPLETE REMOVAL OF THE CATTLEPASS INCLUDING BUT NOT LIMITED TO, TIMBERS, TIES, CONCRETE, AND CRACKED OR DAMAGED STONE MASONRY. INTACT INDIVIDUAL STONES SHALL BE SALVAGED FOR REUSE AT OTHER LOCATIONS WITHIN THE PROJECT AS NOTED IN THESE PLANS. ALL SALVAGED STONES SHALL BE INSPECTED BY THE CONTRACTOR AND THE ENGINEER AFTER THEIR REMOVAL TO DETERMINE IF THEY CAN BE RE-USED AS PART OF THIS PROJECT. ALL STONES THAT ARE NOT REUSED AS PART OF THIS PROJECT SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH SECTION 529. THE INSPECTION OF THE STONES AND ALL COSTS ASSOCIATED WITH MOVING THE STONES TO THE APPROPRIATE LOCATION ON-SITE FOR REUSE WILL BE INCIDENTAL TO THE APPROPRIATE 529.15 ITEM. THE CONTRACTOR SHALL BACKFILL THE VOID FROM THE REMOVED CATTLEPASS WITH EARTH BORROW. ALL WORK ASSOCIATED WITH PLACING EARTH BORROW TO FILL IN THE VOID FROM THE REMOVED CATTLEPASSES WILL BE PAID FOR UNDER ITEM 203.30, “EARTH BORROW”.

PRECAST CONCRETE STRUCTURE NOTES

16. THE DESIGN, CONSTRUCTION, HANDLING. AND ASSEMBLY OF THE PRECAST UNITS SHALL BE IN ACCORDANCE WITH SECTION 540 AND THE SPECIAL PROVISIONS. HANDLING AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER’S RECOMMENDATIONS AS APPLICABLE.

17. THE REINFORCING STEEL IN ALL PRECAST HEADWALLS, UNITS AND FOOTINGS SHALL BE “REINFORCING STEEL, LEVEL I” OR HIGHER.

18. THE PRECAST WINGWALLS SHALL BE SELECTED FROM THE LIST OF WALLS ON THE APPROVED RETAINING WALL DOCUMENT AVAILABLE FROM VAOT MATERIALS AND RESEARCH WEBSITE.

19. ALL PRECAST UNITS INCLUDING THE HEADWALLS AND FOOTINGS SHALL BE DESIGNED BY THE FABRICATOR AND DESIGN CALCULATINOS SUBMITTED WITH FABRICATION DRAWINGS STAMPED BY AN ENGINEER REGISTERED IN THE STATE OF VERMONT.

20. MEMBRANE WATERPROOFING SHALL BE APPLIED TO THE ENTIRE TOP OF THE CONCRETE BOX. A TWO (2) FOOT WIDE STRIP OF MEMBRANE SHALL BE PLACED AT EACH VERTICAL JOINT (SIDES). MEMBRANE SHALL BE CENTERED ON THE JOINT AND COVER THE FULL HEIGHT. THE SIDES SHAL BE COVERED FIRST AND THE TOP WILL FOLLOW. ANY OVERLAPPING OF MEMBRANE SHALL BE DONE IN A SHINGLE TYPE STYPE TO SHED WATER AND SHALL OVERLAP A MINIMUM OF ONE FOOT. PAYMENT FOR MEMBRANE WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 540.10.

21. MAINTENANCE OF STREAM FLOWS DURING THE INSTALLATION OF THE PRECAST CONCRETE STRUCTURES BENEATH THE TRAIL SHALL BE PAID FOR UNDER ITEM 900.645, “SPECIAL PROVISION (TEMPORARY STREAM RELOCATION)”.

22. DESIGN REQUIREMENTS:
    a. LIVE LOADING: H10/PEDESTRIAN

23. FABRICATION DRAWINGS SHALL BE SUBMITTED IN ACCORDANCE WITH SECTION 105.03 AND SHALL INCLUDE AN ASSEMBLY PLAN WITH TEMPORARY BRACING REQUIREMENTS AS REQUIRED FOR ERECTION AND INSTALLATION. ALL COSTS SHALL BE INCIDENTAL TO THE PREFABRICATED MULTI-MODAL BRIDGE ITEM. SEE ADDITIONAL REQUIREMENTS IN THE PROJECT SPECIAL PROVISION FOR ITEM 900.645 “SPECIAL PROVISION (PREFABRICATED MULTI-MODAL BRIDGE)”.

ITEM DETAIL SHEET

CULVERTS

NUMBER	STATION	TYPE	SIZE FT	REMARKS
27A	922+31	STONE BOX	3 x 3	EXCAVATE AND REPLACE
* 27B	931+55	STONE BOX	2 x 3	CLEAN INLET AND OUTLET
* 27C	937+72	STONE BOX	2 x 2	CLEAN INLET AND OUTLET
* 27D **	944+57	STONE BOX	3 x 3	CLEAN INLET
27(4)E	957+61	STONE BOX	1 x 2	EXCAVATE AND REPLACE
27F	962+14	CMP	2.0	EXCAVATE AND REPLACE
27G	974+88	STONE BOX	2 x 2	CLEAN INLET AND OUTLET, REPAIR INLET AND OUTLET
27H(A)	981+20	STONE BOX	5 x 5	INSTALL RAILING ALONG PATH
* 27I	988+74	STONE BOX	3 x 3	CLEAN INLET
27J	1010+91	HDPE	2.0	NO ACTION
27M	1029+23	CMP	2.5	EXCAVATE AND REPLACE
27O	1041+43	STONE BOX	2 x 2	EXCAVATE AND REPLACE
* 27P	1051+33	STONE BOX	2 x 4	REPAIR AND RESTORE GRADE AT OUTLET
* 27S	1063+42	STONE BOX	4 x 4	NO ACTION NEEDED
* 28A	1087+19	STONE BOX	4 x 5	CLEAN OUTLET
* 28B(2)	1092+82	STONE BOX	3 x 3	EXCAVATE AND REPLACE
* 28C	1097+43	STONE BOX	3 x 4	CLEAN OUTLET
* 28(6)D	1105+75	STONE BOX	3 x 3	REPAIR OUTLET
* 28E	1110+48	STONE BOX	2 x 4	CLEAN INLET, REPAIR OUTLET
28G	1118+41	CAST IRON	1.5	CLEAN INLET AND OUTLET
28H(A)	1122+73	CMP	1.3	EXCAVATE AND REPLACE
28I	1129+91	CAST IRON	1.0	CLEAN INLET AND OUTLET
28(7)J	1134+23	STONE BOX	3 x 3	CLEAN INLET AND OUTLET, REPAIR OUTLET
28K	1144+89	CAST IRON	2.0	NO ACTION NEEDED
* 28L	1148+66	STONE BOX	2 x 2	CLEAN INLET
28L(2)	1150+72	N/A	N/A	INSTALL NEW CULVERT AT LOW POINT
28M	1156+27	CAST IRON	1.5	EXCAVATE AND REPLACE
* 28N	1164+89	STONE BOX	3 x 3	CLEAN INLET AND OUTLET
28P	1176+52	STONE BOX	2 x 2	EXCAVATE AND REPLACE
29A	1194+69	STONE BOX	2 x 2	REPAIR INLET AND OUTLET, REPAIR BANKING
* 29B	1207+21	STONE BOX	2 x 2	CLEAN INLET AND OUTLET
29C	1214+01	STONE BOX	2 x 1.5	CLEAN INLET AND OUTLET
29E	1217+66	STONE BOX	2 x 2	CLEAN INLET, REPAIR OUTLET AND BANKING
* 29G	1228+30	STONE BOX	4 x 5	NO ACTION NEEDED
29I	1236+97	CAST IRON	1.5	EXCAVATE AND REPLACE
29J	1239+36	CMP	1.0	EXCAVATE AND REPLACE
29K	1248+88	STONE BOX	1 x 1	EXCAVATE AND REPLACE
* 29L	1257+30	STONE BOX	5 x 5	NO ACTION NEEDED
* 31A	1270+00	STONE BOX	2 x 2	CLEAN INLET AND OUTLET
31B	1280+92	STONE BOX	N/A	ABANDON IN PLACE
31C	1291+35	CMP	N/A	EXCAVATE AND REPLACE
31D	1297+71	CMP	2.0	CLEAN INLET AND REPAIR INLET HEADWALL
31E	1301+65	CAST IRON	1.5	EXCAVATE AND REPLACE
* 31F	1313+35	STONE BOX	3 x 3	CLEAN INLET AND OUTLET
* 31G	1323+88	STONE BOX	2 x 2	EXCAVATE AND REPLACE
31J	1340+62	CAST IRON	2.0	CLEAN INLET, RESTORE GRADE AT OUTLET
31K	1353+55	CMP	2.0	CLEAN INLET AND OUTLET
* 32A	1362+43	STONE BOX	2 - 5 x 6	CLEAN INLET AND OUTLET AND RESTORE GRADE AT INLET
32B	1370+70	CMP	3.0	CLEAN INLET AND OUTLET
32C	1374+99	STONE BOX	2 x 2	CLEAN INLET, REPAIR OUTLET AND BANKING
32D	1384+91	HDPE	3.0	STABILIZE OUTLET
32E	1390+06	STONE BOX	2 x 2	EXCAVATE AND REPLACE, RESTORE GRADE AT INLET
* 32F	1401+88	STONE BOX	3 x 3	CLEAN INLET AND OUTLET
* 33B	1424+20	STONE BOX	2 x 2	CLEAN INLET
33C	1435+05	STONE BOX	6 x 8	REPAIR OUTLET
34A	1456+28	STONE BOX	1 x 1	EXCAVATE AND REPLACE
* 34B	1458+58	STONE BOX	3 x 3	CLEAN INLET AND OUTLET
A35	1479+36	CMP	4.0	CLEAN INLET
35A	1485+62	HDPE	2.0	REPAIR BANKING AT OUTLET
35C	1496+60	CAST IRON	2.0	CLEAN INLET AND OUTLET
35D	1502+48	STONE BOX	2 x 2	NO ACTION
35E	1507+51	CAST IRON	1.3	CLEAN INLET AND OUTLET
35E-2	1529+79	CMP	1.3	CLEAN INLET AND OUTLET
35E-3	1534+67	CMP	1.0	CLEAN INLET, CONSTRUCT STONE HEADWALL AT INLET & OUTLET
36A	1570+49	STONE BOX	3 x 3	EXCAVATE AND REPLACE
36B	1575+38	CMP	1.5	CLEAN INLET AND OUTLET
36C	1585+74	CAST IRON	1.0	EXCAVATE AND REPLACE
36D	1594+68	STONE BOX	3 x 3	EXCAVATE AND REPAIR
36E	1597+85	CAST IRON	1.5	REPAIR HEADWALL AT INLET
36G	1601+66	CAST IRON	1.0	CLEAN INLET, RESTORE GRADE AT OUTLET
36H	1607+85	CAST IRON	1.0	CLEAN INLET AND OUTLET
36H(2)	1613+95	N/A	N/A	INSTALL CULVERT AT LOW POINT
36I	1627+24	STONE BOX	2 - 4 x 6	CLEAN INLET
36I(2)	1633+10	CMP	1.5	EXCAVATE AND REPLACE
36J	1645+07	CAST IRON	2.0	EXCAVATE AND REPLACE
* 36L	1663+04	STONE BOX	1 x 2	EXCAVATE AND REPAIR
* 36M	1666+22	STONE BOX	5 x 4	STABILIZE OUTLET
**	THESE CULVERTS WERE IMPACTED BY THE HALLOWEEN STORM IN 2019, AND ARE SCHEDULED TO BE REPAIRED UNDER A FEMA PROJECT. ACTUAL CONDITIONS MAY VARY FROM WHAT IS INDICATED ON THESE PLANS. CERTAIN ELEMENTS OF WORK ON THESE CULVERTS MAY BE DELETED OR ADDED AS DIRECTED BY THE ENGINEER			
*	NATIONAL HISTORIC REGISTER ELIGIBLE			

CATTLEPASSES

NUMBER	STATION	TYPE	SIZE FT	REMARKS
* 27R	1061+77	STONE	4 x 4	INSTALL GUARDRAIL
* 28B	1087+99	STONE	4 x 4	EXCAVATE AND REPAIR
* 28F	1111+99	STONE	4 x 4	NO ACTION NEEDED
* 28O	1171+54	STONE	3 x 3	INSTALL GUARDRAIL
* 29D	1214+28	STONE	3 x 2	INSTALL GUARDRAIL
* 29H	1230+76	STONE	3 x 6	REMOVE AND RESET ABBUTMENTS, REPLACE DECK AND INSTALL RAILING
* 30	1258+52	STONE	10 x 10	REPLACE HEADWALL, FACIA CONCRETE REPAIR AND INSTALL GUARDRAIL
33	1410+38	CONCRETE	8 x 10	INSTALL GUARDRAIL
37	1702+78	STONE	6 x 6	REPLACE WITH CULVERT
39	1792+66	WOOD STRINGER	15 x 5	REMOVE AND FILL HOLE WITH ON-SITE SUITABLE EXCAVATED MATERIAL OR GRANULAR BORROW
*	NATIONAL HISTORIC REGISTER ELIGIBLE			

BRIDGES

NUMBER	BEGIN STATION	END STATION	TYPE	LENGTH FT	REMARKS
27	893+78	894+21	STEEL I-BEAM, PILE BENT	43	REPLACE DECK, INSTALL BRIDGE AND APPROACH RAILS
A27	1056+76	1058+30	PREFABRICATED MULTI-MODAL	154	N.I.C. BRIDGE WORK COMPLETED DURING LVRT(10) CONSTRUCTION
28	1073+23	1073+49	STEEL I-BEAM, PILE BENT	26	REPLACE DECK, INSTALL BRIDGE AND APPROACH RAILS
* 29	1190+25	1191+15	STONE ARCH	90	NO ACTION NEEDED
31	1261+30	1261+77	STEEL I-BEAM	47	REMOVE BRIDGE AND CONSTRUCT AT GRADE CROSSING
34	1449+52	1450+61	PREFABRICATED MULTI-MODAL	109	N.I.C. BRIDGE WORK COMPLETED DURING LVRT(10) CONSTRUCTION
35	1474+79	1476+06	PREFABRICATED MULTI-MODAL	127	N.I.C. BRIDGE WORK COMPLETED DURING LVRT(10) CONSTRUCTION
36	1552+26	1552+71	STEEL I-BEAM	45	REPLACE DECK, INSTALL BRIDGE AND APPROACH RAILS, BACKWALL RETROFIT, FILL VOIDS AND RE-POINT SUBSTRUCTURE
38	1757+00	1758+50	STEEL DECK PLATE	150	NO ACTION NEEDED
40	1803+75	1805+75	STEEL THROUGH-PLATE	200	NO ACTION NEEDED
*	NATIONAL HISTORIC REGISTER ELIGIBLE				

PROJECT NAME: SWANTON - ST JOHNSBURY
PROJECT NUMBER: STP LVRT(13)

FILE NAME: z20f239_ids.dgn
PROJECT LEADER: E.P. DETRICK
DESIGNED BY: B.M. ROBERTS
ITEM DETAIL SHEET (1 OF 3)

PLOT DATE: 4/30/2021
DRAWN BY: B.M. ROBERTS
CHECKED BY: E.P. DETRICK
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CULVERTS

NUMBER	STATION	TYPE	SIZE FT	REMARKS
36O	1683+18	CMP	2.0	CLEAN INLET
36P	1688+83	STONE BOX	3 x 3	CLEAN INLET AND OUTLET
37A	1710+02	CMP	2.0	ABANDON IN PLACE
37B	1719+16	CAST IRON	1.5	CLEAN INLET AND OUTLET
37C	1722+45	CAST IRON	1.5	CLEAN INLET, STABILIZE OUTLET
37D	1726+17	CAST IRON	1.5	CLEAN INLET AND OUTLET, REGRADE AROUND INLET
37E	1733+73	STONE BOX	3 x 3	EXCAVATE AND REPLACE, REPAIR BANKING AT OUTLET
37F	1740+97	CMP	2.0	CLEAN INLET & OUTLET, REPAIR BANKING, STABILIZE OUTLET
37G	1749+14	CMP	1.0	EXCAVATE AND REPLACE
38A(1)	1766+18	N/A	N/A	INSTALL CULVERT
38A	1769+98	STONE BOX	3 x 3	EXCAVATE AND REMOVE CMP, RE-BUILD STONE BOX
38B	1772+12	CAST IRON	2.0	REGRADE AROUND INLET, CLEAN OUTLET
38B(2)	1773+53	N/A	N/A	INSTALL CULVERT
38C	1775+74	CAST IRON	1.5	CLEAN INLET AND OUTLET, REGRADE AROUND INLET
38D	1777+07	CAST IRON	1.5	CLEAN INLET, REGRADE AROUND OUTLET
38E	1784+43	CONCRETE	2.0	CLEAN OUTLET, REGRADE AROUND INLET
38F	1791+90	HDPE	3.0	NO ACTION NEEDED
39A	1797+68	STONE BOX	3 x 3	EXCAVATE AND REPLACE
40A	1811+60	CPEP	2.0	NO ACTION NEEDED
40B	1818+52	STONE BOX	3 x 3	EXCAVATE AND REPLACE
40C	1823+29	CAST IRON	1.5	CLEAN OUTLET
40D	1827+28	HDPE	1.5	REGRADE AROUND INLET, CLEAN INLET
40F	1832+72	HDPE	1.0	CLEAN OUTLET

**	THESE CULVERTS WERE IMPACTED BY THE HALLOWEEN STORM IN 2019, AND ARE SCHEDULED TO BE REPAIRED UNDER A FEMA PROJECT. ACTUAL CONDITIONS MAY VARY FROM WHAT IS INDICATED ON THESE PLANS. CERTAIN ELEMENTS OF WORK ON THESE CULVERTS MAY BE DELETED OR ADDED AS DIRECTED BY THE ENGINEER
*	NATIONAL HISTORIC REGISTER ELIGIBLE

CATTLEPASSES

NUMBER	STATION	TYPE	SIZE FT	REMARKS

BRIDGES

NUMBER	BEGIN STATION	END STATION	TYPE	LENGTH FT	REMARKS

PROJECT NAME: SWANTON - ST JOHNSBURY
PROJECT NUMBER: STP LVRT(13)

FILE NAME: z20f239_ids.dgn
PROJECT LEADER: E.P. DETRICK
DESIGNED BY: B.M. ROBERTS
ITEM DETAIL SHEET (2 OF 3)

PLOT DATE: 4/30/2021
DRAWN BY: B.M. ROBERTS
CHECKED BY: E.P. DETRICK

ITEM DETAIL SHEET

RAILING

BEGIN STATION	END STATION	LENGTH FT	TYPE	REMARKS
893+66	893+78	12	APPROACH	BRIDGE APPROACH RAIL, BOTH SIDES
893+78	894+21	43	BRIDGE	BRIDGE RAIL, BOTH SIDES
894+18	894+30	12	APPROACH	BRIDGE APPROACH RAIL, BOTH SIDES
980+65	981+05	40	GUARDRAIL	STEEP SLOPE LEFT SIDE
981+35	981+75	40	GUARDRAIL	STEEP SLOPE RIGHT SIDE
1061+77	1061+97	10	GUARDRAIL	CATTLEPASS, BOTH SIDES
1062+17	1064+67	250	GUARDRAIL	STEEP SLOPE BOTH SIDES
1073+11	1073+23	12	APPROACH	BRIDGE APPROACH RAIL, BOTH SIDES
1073+23	1073+49	26	BRIDGE	BRIDGE RAIL, BOTH SIDES
1073+51	1073+63	12	APPROACH	BRIDGE APPROACH RAIL, BOTH SIDES
1171+49	1171+59	10	GUARDRAIL	CATTLEPASS, BOTH SIDES
1188+67	1192+42	375	GUARDRAIL	STEEP EMBANKMENT & WATER HAZARD, BOTH SIDES
1214+23	1214+33	10	GUARDRAIL	CATTLEPASS, BOTH SIDES
1230+56	1230+68	12	APPROACH	BRIDGE APPROACH RAIL, BOTH SIDES
1230+68	1230+83	15	BRIDGE	BRIDGE RAIL FOR CATTLEPASS 29H, BOTH SIDES
1230+83	1230+95	12	APPROACH	BRIDGE APPROACH RAIL, BOTH SIDES
1257+67	1257+92	25	GUARDRAIL	CATTLEPASS, BOTH SIDES
1410+23	1410+53	30	GUARDRAIL	CATTLEPASS, BOTH SIDES
1552+14	1552+26	12	APPROACH	BRIDGE APPROACH RAIL, BOTH SIDES
1552+26	1552+71	45	BRIDGE	BRIDGE RAIL, BOTH SIDES
1552+71	1552+83	12	APPROACH	BRIDGE APPROACH RAIL, BOTH SIDES
1565+82	1570+32	450	GUARDRAIL	STEEP SLOPE, LT
1721+77	1723+52	175	GUARDRAIL	STEEP SLOPE, LT
1823+24	1828+24	500	GUARDRAIL	RESTRICT ACCESS, RT

WASHOUTS

BEGIN STATION	END STATION	LENGTH FT	TYPE	REMARKS
1360+26	1360+76	50	PONDING	RAISE GRADE 6", DITCH, REPAIR LEFT BANK
1436+87	1446+87	1000	PONDING	RAISE GRADE 12" TO RESTORE DITCH LINE
1557+67	1559+97	230	WETLAND	RAISE GRADE 12" TO RESTORE DITCH LINE
1588+02	1588+77	75	BANK EROSION	RAISE GRADE 24", REPAIR BANKING
1589+67	1590+17	50	PONDING	RAISE GRADE 12" TO RESTORE DITCH LINE
1741+66	1741+86	20	BANK EROSION	REPAIR WITH ON-SITE STRUCTURALLY SUITABLE EX. MATERIAL AND TRAIL SURFACE MATERIAL, LT
1765+47	1766+72	125	PONDING	RAISE GRADE 12" AND INSTALL CULVERT
1773+87	1774+87	100	PONDING	RAISE GRADE 12" AND INSTALL CULVERT

CROSSINGS

NUMBER	STATION	TYPE	MATERIAL	CURRENTLY PERMITTED	REMARKS
35	892+93	TOWN ROAD	GRAVEL	YES	CONSTRUCT ACCESSIBLE GRAVEL ROAD CROSSING ON WEST SIDE ONLY
36	942+67	PUBLIC	GRASS	YES	SIGN CROSSING
N/A	949+07	ATV ACCESS	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
N/A	958+52	SNOWMOBILE	GRASS	NO	NO ACTION REQUIRED
N/A	980+87	ATV ACCESS	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
37	981+20	TOWN ROAD	GRAVEL	YES	CONSTRUCT ACCESSIBLE GRAVEL ROAD CROSSING AND INSTALL RAILING TO PROTECT USERS FROM ADJACENT STREAM/CULVERT
38	1001+02	TOWN ROAD	GRAVEL	YES	CONSTRUCT ACCESSIBLE GRAVEL ROAD CROSSING
N/A	1026+32	FARM/HIKING	GRASS	NO	NO ACTION REQUIRED
39	1039+52	STATE ROAD	PAVED	YES	CONSTRUCT ACCESSIBLE PAVED ROAD CROSSING
N/A	1042+62	PARKING ACCESS	GRASS	NO	NO ACTION REQUIRED
40	1048+59	DRIVEWAY	GRAVEL	NO	SIGN CROSSING
N/A	1055+87	ATV ACCESS	GRAVEL	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
N/A	1066+42	ATV ACCESS	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
41	1069+71	ATV ACCESS	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
42	1075+20	SNOWMOBILE	GRASS	NO	NO ACTION REQUIRED
N/A	1076+86	FARM	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
43	1084+97	FARM	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
44	1089+23	FARM	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
45	1106+52	FARM	GRASS	YES	DITCH THROUGH CROSSING
46	1130+07	TOWN ROAD	GRAVEL	YES	CONSTRUCT ACCESSIBLE GRAVEL ROAD CROSSING
49	1169+34	FARM	GRAVEL	NO	DITCH THROUGH CROSSING
N/A	1202+60	SNOWMOBILE	GRASS	NO	NO ACTION REQUIRED
50	1216+57	TOWN ROAD	GRAVEL	YES	CONSTRUCT ACCESSIBLE GRAVEL ROAD CROSSING
N/A	1220+37	ATV ACCESS	GRAVEL	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
N/A	1226+47	ATV ACCESS	GRAVEL	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
N/A	1249+60	FARM	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
52	1253+42	SNOWMOBLIE	GRASS	YES	NO ACTION REQUIRED
N/A	1267+02	ATV ACCESS	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
53	1273+52	ATV ACCESS	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
54	1285+92	FARM	GRAVEL	YES	DITCH THROUGH CROSSING TO PREVENT PONDING ON TRAIL
55	1298+12	TOWN ROAD	GRAVEL	YES	CONSTRUCT ACCESSIBLE GRAVEL ROAD CROSSING
56	1301+01	FARM	EARTH	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
57	1332+09	SNOWMOBILE	GRASS	NO	NO ACTION REQUIRED
N/A	1343+34	ATV ACCESS	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
59	1349+85	TOWN ROAD	PAVED	YES	CONSTRUCT ACCESSIBLE PAVED ROAD CROSSING
60	1355+53	FARM	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
N/A	1358+42	ATV ACCESS	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
61	1363+92	ATV ACCESS	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
N/A	1373+82	SUGARING	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
N/A	1380+02	SUGARING	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
N/A	1382+02	SUGARING	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
N/A	1387+22	SUGARING	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
62	1392+54	SUGARING	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
N/A	1399+02	SUGARING	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
63	1399+73	SUGARING	GRAVEL	YES	SIGN CROSSING
64	1411+20	FARM	GRAVEL	NO	RE-ESTABLISH HISTORICAL ALIGNMENT THROUGH CROSSING
65	1426+16	FARM	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
N/A	1437+52	FARM	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
66	1458+21	TOWN ROAD	GRAVEL	YES	CONSTRUCT ACCESSIBLE GRAVEL ROAD CROSSING
68	1468+21	SNOWMOBILE	GRASS	NO	NO ACTION REQUIRED
69	1472+15	TOWN ROAD	PAVED	YES	CONSTRUCT ACCESSIBLE PAVED ROAD CROSSING
N/A	1487+52	FARM	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
N/A	1491+77	DRIVEWAY	PAVED	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
70	1497+17	TOWN ROAD	PAVED	YES	CONSTRUCT ACCESSIBLE PAVED ROAD CROSSING
N/A	1504+25	DRIVEWAY	GRAVEL	NO	SIGN CROSSING
72	1512+33	FARM	GRAVEL	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
73	1522+34	FARM	GRASS	YES	GRADE TO RETAIN POSITIVE DRAINAGE OFF TRAIL AT CROSSING
74	1540+84	DRIVEWAY	GRAVEL	NO	CONSTRUCT ACCESSIBLE GRAVEL ROAD CROSSING
75	1543+92	TOWN ROAD	GRAVEL	YES	CONSTRUCT ACCESSIBLE GRAVEL ROAD CROSSING
76	1545+50	FARM	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
N/A	1553+82	FARM	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
77	1571+86	FARM	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
N/A	1589+92	HIKING	GRASS	NO	RESTRICT TO PEDESTRIAN ACCESS ONLY
78	1596+62	STATE ROAD	PAVED	YES	CONSTRUCT ACCESSIBLE PAVED ROAD CROSSING
79	1623+79	PRIVATE	GRASS	NO	EXISTING GUARDRAIL ON LEFT, BLOCK ACCESS ON RIGHT AS DIRECTED BY THE ENGINEER
80	1629+72	TOWN ROAD	PAVED	YES	CONSTRUCT ACCESSIBLE PAVED ROAD CROSSING
82	1643+12	TOWN ROAD	GRAVEL	YES	CONSTRUCT ACCESSIBLE GRAVEL ROAD CROSSING
83	1646+52	TOWN ROAD	PAVED	YES	CONSTRUCT ACCESSIBLE PAVED ROAD CROSSING
N/A	1689+52	FARM	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
84	1701+65	FARM	GRASS	YES	DITCH AT CROSSING TO CONTROL WATER FLOW OFF TRAIL
86	1719+32	TOWN ROAD	GRAVEL	YES	CONSTRUCT ACCESSIBLE GRAVEL ROAD CROSSING
88	1759+12	TRAIL HEAD	GRAVEL	YES	NO ACTION REQUIRED
N/A	1793+63	ATV ACCESS	GRASS	NO	BLOCK ACCESS AS DIRECTED BY THE ENGINEER
89	1794+01	TOWN ROAD	GRAVEL	YES	CONSTRUCT ACCESSIBLE GRAVEL ROAD CROSSING
90	1834+92	TOWN ROAD	PAVED	YES	CONSTRUCT ACCESSIBLE PAVED ROAD CROSSING ON EAST SIDE ONLY

vhb

PROJECT NAME: SWANTON - ST JOHNSBURY
PROJECT NUMBER: STP LVRT(13)

FILE NAME: z20f239_ids.dgn
PROJECT LEADER: E.P. DETRICK
DESIGNED BY: B.M. ROBERTS
ITEM DETAIL SHEET (3 OF 3)

PLOT DATE: 4/30/2021
DRAWN BY: B.M. ROBERTS
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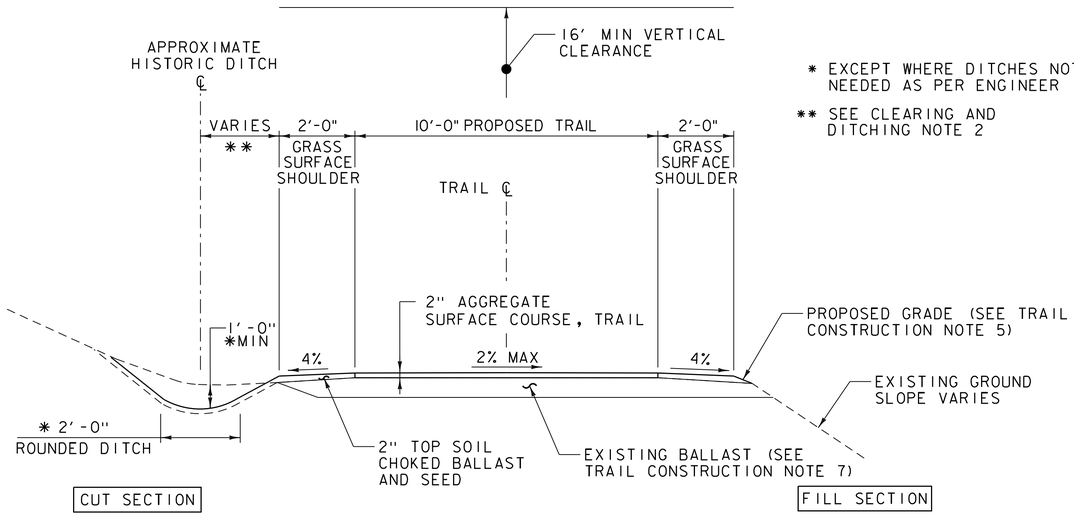
SHEET 9 OF 93



* EXCEPT WHERE DITCHES NOT NEEDED AS PER ENGINEER

** SEE CLEARING AND DITCHING NOTE 2

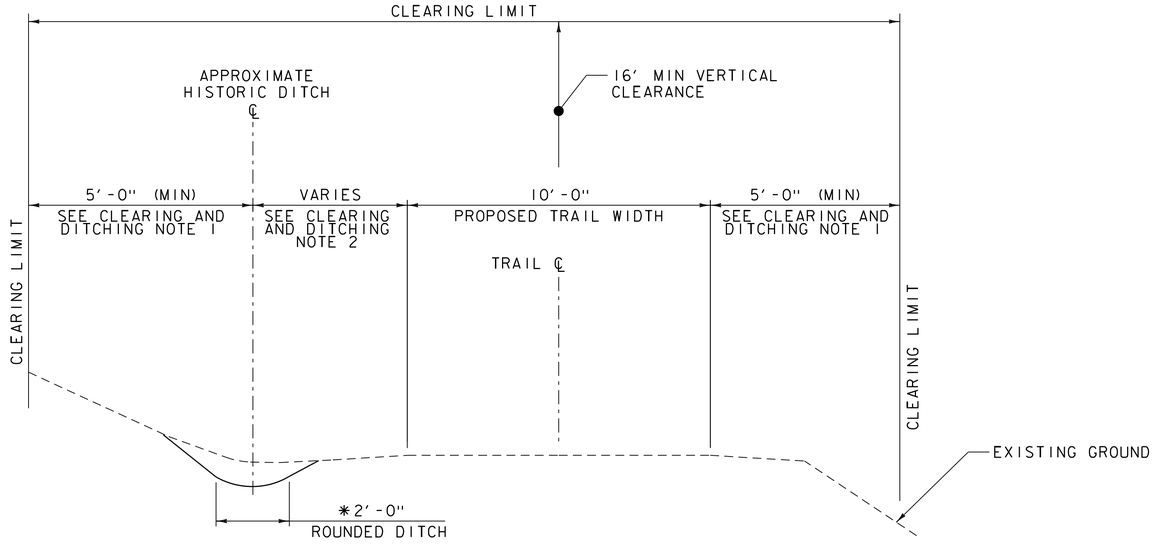
TRAIL TYPICAL SECTION

NOT TO SCALE

SHOULDER WIDTH TABLE

SIDE SLOPE	SHOULDER WIDTH	
	MIN.	PREFERRED
< 1:4	1'-0"	2'-0"
1:3	1'-0"	3'-0"
1:2	1'-0"	5'-0"
> 1:2	1'-0"	5'-0"

SEE TRAIL CONSTRUCTION NOTE 8



CLEARING AND DITCHING TYPICAL SECTION

NOT TO SCALE

TRAIL CONSTRUCTION NOTES:

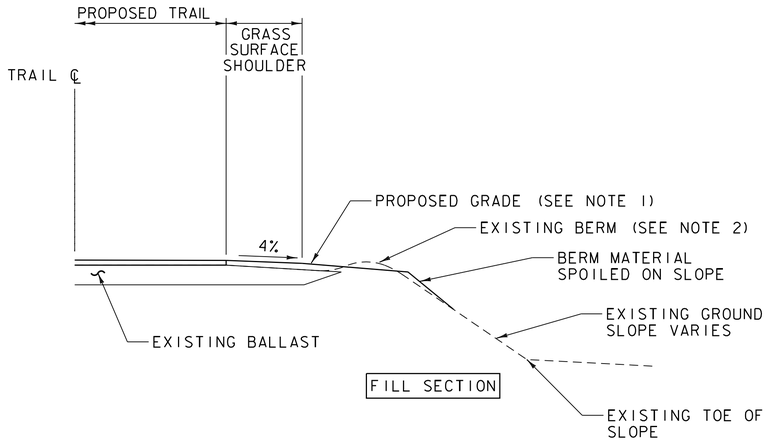
1. IF THE EXISTING RAIL BED HAS ANY WASHOUTS OR HOLES, THEY SHALL BE FILLED WITH GRANULAR BORROW TO THE REQUIRED ELEVATION FOR THE INSTALLATION OF 2" OF ITEM 900.608, "SPECIAL PROVISION (AGGREGATE SURFACE COURSE, TRAIL)".
2. ENTIRE TRAIL SURFACE SHALL BE BANKED 2% TO THE INSIDE OF CURVES. TRAIL SHALL OTHERWISE BE GRADED TO DRAIN OR SLOPED TO ONE SIDE IN FLAT AREAS WITH 2% CROSS SLOPE MAXIMUM.
3. THE CONTRACTOR SHALL REMOVE RAILROAD TIES AND RAIL FROM BALLAST AND DISPOSE OF BY METHODS APPROVED BY THE VT AGENCY OF NATURAL RESOURCES. REMOVAL OF TIES AND RAIL SHALL BE PAID INCIDENTAL TO ITEM 201.10, "CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS".
4. 1V:4H IS THE PREFERRED FILL SIDE SLOPE UNLESS THE FILL WOULD EXTEND BEYOND THE CLEARING LIMITS, IN WHICH CASE STEEPER SLOPES SHALL BE USED.
5. SIDE SLOPES DISTURBED DURING CONSTRUCTION STEEPER THAN 1V:3H SHALL BE SEEDED AND PROTECTED WITH ITEM 653.20, "ROLLED EROSION CONTROL PRODUCT, TYPE I" UNLESS STEEPER THAN 1V:2H , THEN ITEM 613.10, "STONE FILL, TYPE I" SHALL BE USED. SIDE SLOPES STEPER THAN 1V:1.5H SHALL BE PROTECTED WITH ITEM 613.11 "STONE FILL, TYPE II" OR AS SPECIFIED IN THE PLANS OR BY THE ENGINEER. PAYMENT FOR ALL SIDE SLOPE PROTECTION MEASURES SHALL BE PAID FOR UNDER THEIR RESPECTIVE ITEMS.
6. STONE FILL SLOPES ABOVE THE ORDINARY HIGH WATER LINE SHALL BE GRUBBED WITH 12" OF GRUBBING MATERIAL. GRUBBING MATERIAL SHALL BE PAID FOR UNDER ITEM 651.40 "GRUBBING MATERIAL".
7. IF THE EXISTING RAIL BED LACKS 8" OF SALVAGEABLE BALLAST OR WELL DRAINED GRANULAR MATERIAL, GRANULAR BORROW SHALL BE ADDED TO ACHIEVE THE REQUIRED 8" BASE.
8. THE PREFERRED SHOULDER DIMENSIONS SHALL BE USED UNLESS CONSTRAINED BY THE WIDTH OF THE EXISTING RAIL BED AND STEEP SIDE SLOPES. SHOULDER WIDTHS BELOW THE PREFERRED WIDTH SHALL BE USED WHEN DIRECTED BY THE ENGINEER. CERTAIN EXISTING RAIL BED WIDTHS AND SIDE SLOPE CONDITIONS MAY WARRANT SHOULDER WIDTHS BELOW THE MINIMUM WIDTHS SHOWN. TO AVOID THE USE OF GUARDRAIL TO PROTECT STEEP SLOPES WITHOUT AN ADEQUATE BARRIER OF VEGETATION OR OTHER IMPASSABLE OBJECTS, THE ENGINEER MAY DIRECT THE CONTRACTOR TO LOWER THE PROFILE OF THE EXISTING TRAIL TO ACHIEVE THE PREFERRED SHOULDER WIDTH.
9. BALLAST GRADING AND COMPACTION SHALL BE PAID FOR UNDER ITEM 900.645, "SPECIAL PROVISION (BALLAST GRADING AND SHAPING)".
10. GRASS SHOULDERS MAY BE OMITTED IF GRASSED BERMS EXIST AT THE EDGES OF THE PROPOSED TRAIL. OMISSION OF SHOULDERS MUST BE APPROVED BY THE ENGINEER.
11. FOR LOCATIONS NOTED AS A WASHOUT, ON ITEM DETAIL SHEET 3, WHERE THE PROPOSED ACTION IS TO RAISE GRADE, THE LONGITUDINAL SLOPE OF THE TRAIL SHALL NOT EXCEED 5%.

CLEARING AND DITCHING NOTES:

1. CLEARING LIMIT ON EMBANKMENT SLOPES STEEPER THAN 1V:2H SHALL NOT BE MORE THAN 1'-0" BEYOND THE TOP OF SLOPE. ACTUAL CLEARING LIMITS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER. IN ROCK CUT AREAS, CLEAR THE WIDTH OF THE BALLAST AND DITCHES ALONG WITH ANY OVERHANGING VEGETATION. DO NOT CLEAR OR DAMAGE HEALTHY TREES GREATER THAN 5" IN DIAMETER ON STEEP EMBANKMENTS OFF THE EDGE OF THE BALLAST UNLESS WITHIN 1'-0" OF THE BALLAST. DO NOT REMOVE ROOTS OR STUMPS ON SLOPES. PRUNE BRANCHES WITHIN CLEARING LIMITS AND REMOVE DEAD TREES 3'-0" BEYOND THE TOP OF SLOPE. CLEARING TO BE PAID UNDER ITEM 201.10, "CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS".
2. RE-ESTABLISH APPROXIMATE UNMAINTAINED HISTORIC DITCHES. ACTUAL DITCH OFFSET AND BOTTOM ELEVATION SHALL BE SET IN THE FIELD BY THE ENGINEER. SALVAGE CLEAN BALLAST FROM DITCHES TO RAIL BED. DITCH EXCAVATION DEPTH VARIES TO ACCOMMODATE HISTORIC LOCATIONS, BACK SLOPES, DITCH PROFILE, AND CROSS CULVERT INVERT ELEVATIONS. DITCHING WORK SHALL BE PAID UNDER ITEM 900.640, "SPECIAL PROVISION (DITCHING)".
3. WASTE SILT AND EXCAVATED MATERIALS ONTO DESIGNATED SHOULDERS AND EMBANKMENT SLOPES THAT HAVE BEEN MARKED BY THE ENGINEER. SEE WASTE AREA DETAILS SHEET FOR WASTING DETAILS. CLEAR WASTE AREAS PRIOR TO WASTING MATERIAL. RAKE SEED AND MULCH THE DRESSED SLOPES WITHIN 72 HOURS, OR IMMEDIATELY IF EXPECTING RAIN WITHIN 24 HOURS. COSTS FOR WASTING MATERIAL SHALL BE INCIDENTAL TO ALL CONTRACT ITEMS.
4. IN WETLANDS OR ON BANKS OF WATER BODIES DO NOT CLEAR PAST THE EDGE OF BALLAST OR TOP OF BANK, OR OTHER LIMITS SET BY PERMIT CONDITIONS.
5. ON BALLAST TRAIL SHOULDERS AND DITCHES, REMOVE ALL TREES, BRUSH, WEEDS, LEAVES, BRANCHES, TRASH, ROOTS, STUMPS; TOPSOIL MAY BE SALVAGED FOR THE USE ON TRAIL GRASS SURFACE.
6. ON LATERAL DITCHES OR SHOULDERS, CLEAR CUT AND REMOVE ALL TREES, BRUSH, WEEDS, LEAVES, BRANCHES TO WITHIN 4" OF SOIL SURFACE.
7. ORGANIC MATERIAL THAT HAS BEEN CHIPPED, GROUND, OR MULCHED MAY REMAIN. IF IT IS TO REMAIN, MATERIAL SHALL BE SPREAD EVENLY ON SIDE SLOPES AND ADJACENT R.O.W. LAND AT A THICKNESS THAT WILL NOT IMPEDE VEGETATION GROWTH. LOCATIONS TO BE APPROVED BY ENGINEER AND SHALL NOT BE IN WETLANDS OR WETLAND BUFFERS. REMOVE AND LEGALLY DISPOSE OF ANY TRASH AND DEBRIS OFF SITE. THE COST OF DISPOSAL OF TRASH AND DEBRIS SHALL BE INCIDENTAL TO ALL CONTRACT ITEMS.

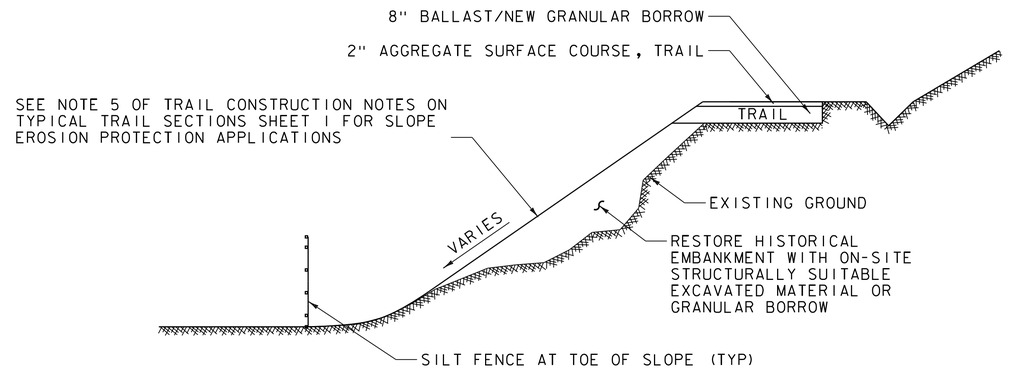
PROJECT NAME: SWANTON - ST. JOHNSBURY
PROJECT NUMBER: STP LVRT(13)

FILE NAME: z20f239_typ_trail_sections.dgn PLOT DATE: 4/30/2021
PROJECT LEADER: E.P. DETRICK DRAWN BY: B.M. ROBERTS
DESIGNED BY: B.M. ROBERTS CHECKED BY: E.P. DETRICK
TYPICAL TRAIL SECTIONS SHEET (1 OF 2) SHEET 10 OF 93



SLOPE ROUNDING DETAIL

NOT TO SCALE



EMBANKMENT SLOPE REPAIR

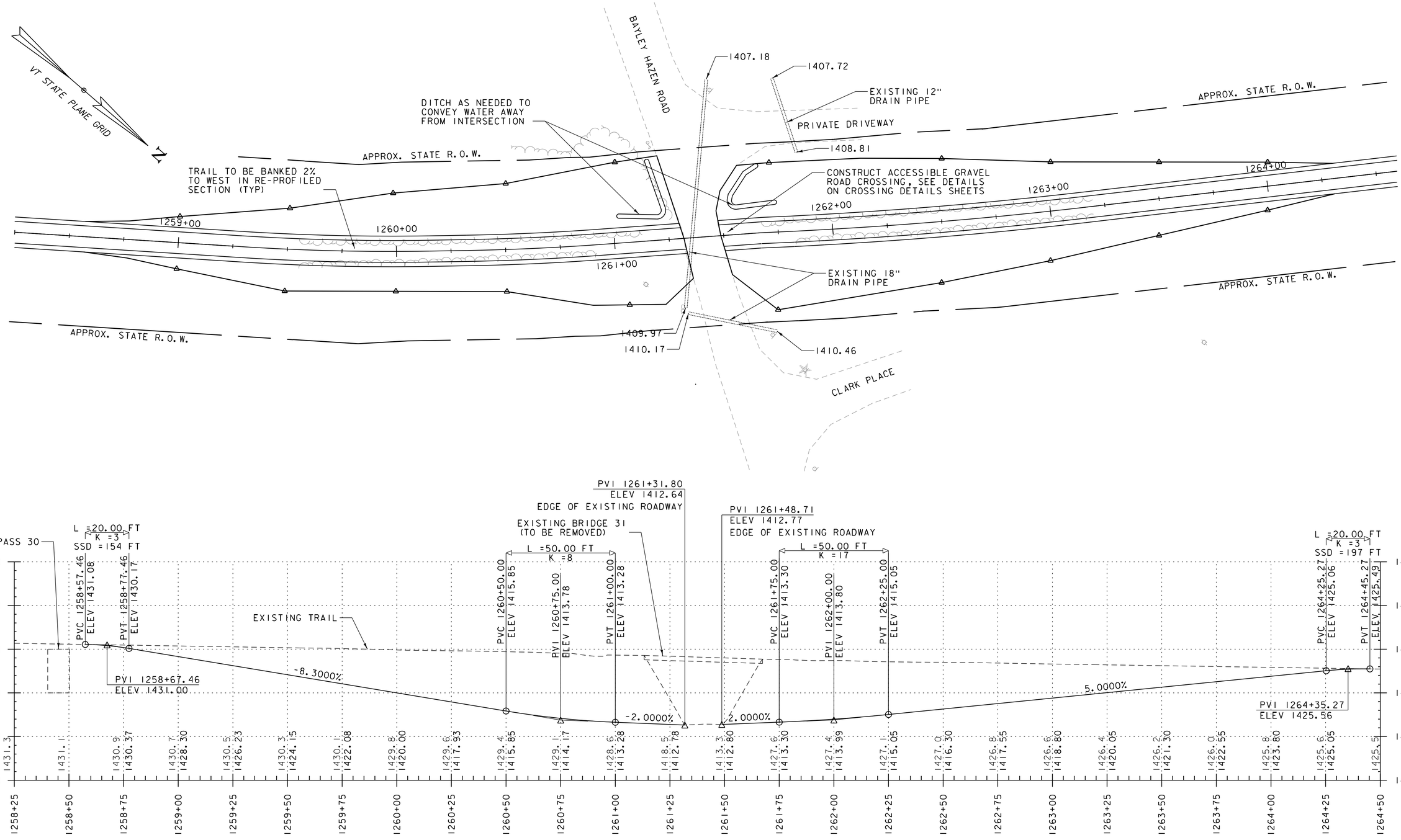
NOT TO SCALE

NOTES:

1. SEE TRAIL TYPICAL SECTIONS (SHEET 1 OF 2) FOR TRAIL CONSTRUCTION NOTES.

2. BERMS LOCATED AT THE TOP OF EMBANKMENTS SHALL BE ROUNDED TO PROMOTE SHEET FLOW FROM THE TRAIL DOWN THE EXISTING RAIL EMBANKMENT. BERM MATERIAL REMOVED SHALL BE PUSHED OVER THE EMBANKMENT IF THAT MATERIAL DOES NOT GO BEYOND THE EXISTING TOE OF THE SLOPE. IF THE BERM MATERIAL WOULD EXTEND BEYOND THE EXISTING TOE OF THE SLOPE, THE MATERIAL SHALL BE SPOILED IN A PRE- APPROVED DISPOSAL LOCATION OR PAUSE PLACE. PAYMENT FOR SLOPE ROUNDING SHALL BE MADE UNDER ITEM 201.10 CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS.

PROJECT NAME:	SWANTON - ST. JOHNSBURY
PROJECT NUMBER:	STP LVRT(13)
FILE NAME: z20f239_typ_trail_sections.dgn	PLOT DATE: 4/30/2021
PROJECT LEADER: E.P. DETRICK	DRAWN BY: B.M. ROBERTS
DESIGNED BY: B.M. ROBERTS	CHECKED BY: E.P. DETRICK
TYPICAL TRAIL SECTIONS SHEET (2 OF 2)	SHEET 11 OF 93



NOTES

1. ALL ELEVATIONS SHOWN IN THIS PROFILE IS THE ENGINEERS BEST INTERPRETATION OF LIDAR DATA. TRUE ELEVATIONS AND DESIGN SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER BEFORE CONSTRUCTION.

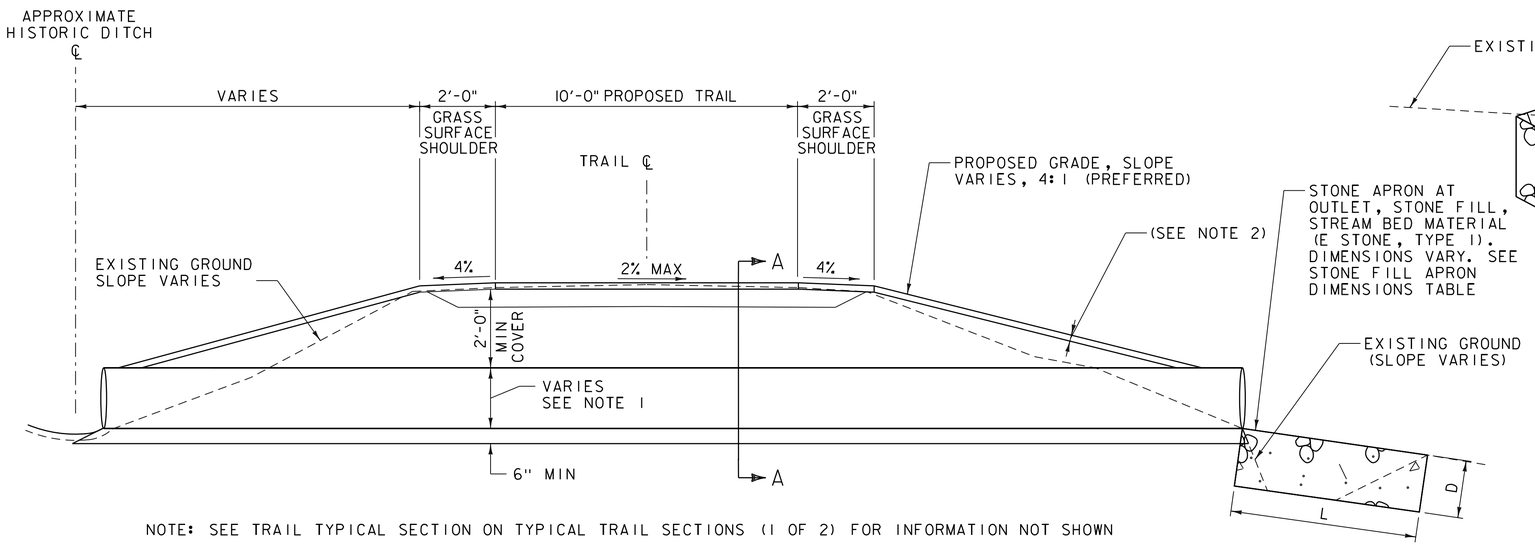
2. STATIONING AND ELEVATIONS IN FEET (TYP.).

BRIDGE 31 REMOVAL

PROJECT NAME: SWANTON - ST JOHNSBURY
PROJECT NUMBER: STP LVRT(13)

FILE NAME: z20f239_trail_lowering.dgn
PROJECT LEADER: E.P. DETRICK
DESIGNED BY: B.M. ROBERTS
TRAIL LOWERING DETAIL

PLOT DATE: 4/30/2021
DRAWN BY: B.M. ROBERTS
CHECKED BY: E.P. DETRICK
SHEET 12 OF 93



NOTE: SEE TRAIL TYPICAL SECTION ON TYPICAL TRAIL SECTIONS (1 OF 2) FOR INFORMATION NOT SHOWN

TYPICAL CULVERT REPLACEMENT/INSTALLATION DETAIL (ROUND PIPE)

NOT TO SCALE

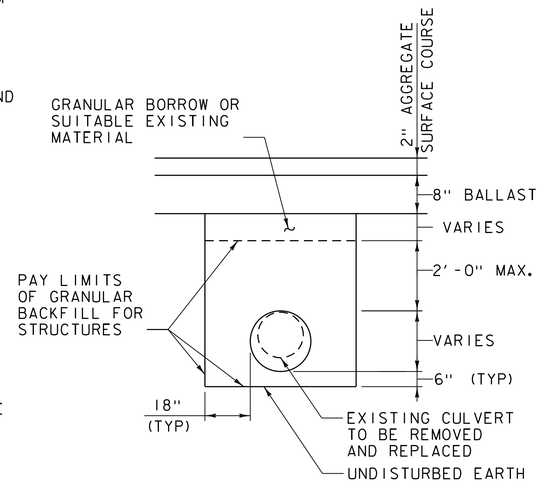
NOTES:

1. SEE TABLE AND ITEM DETAIL SHEET FOR SIZE, TYPE, AND LOCATION OF CULVERTS.
2. DISTURBED SLOPES SHALL HAVE 2" OF TOPSOIL, SEED AND MULCH. SEE NOTE 5 ON TYPICAL TRAIL SECTIONS (SHEET 1 OF 2) FOR ADDITIONAL SLOPE CONDITIONS STEEPER THAN 1V:3H.
3. EXCAVATION, REMOVAL AND DISPOSAL OF EXISTING ROUND CULVERTS, 4 FEET IN DIAMETER OR LESS, SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2018, SECTION 204. EXCAVATION FOR ALL OTHER CULVERTS, UNLESS OTHERWISE NOTED WITHIN THE PLANS, SHALL BE PAID UNDER ITEM 204.25, "STRUCTURE EXCAVATION".
4. IF THE EXISTING CULVERT IS A STONE BOX CULVERT THE CONTRACTOR SHALL SALVAGE STONES REMOVED FOR THE INSTALLATION OF THE NEW CULVERT AND STOCKPILE THEM IN A LOCATION WITHIN THE PROJECT LIMITS AS DESIGNATED BY THE ENGINEER. ALL COSTS ASSOCIATED WITH SALVAGING AND STOCKPILING THE STONES SHALL BE INCIDENTAL TO STRUCTURE EXCAVATION UNLESS OTHERWISE NOTED WITHIN THE PLANS.
5. IF THE EXISTING CULVERT TO BE REMOVED IS AT A LOWER DEPTH THAN THE NEW ONE TO BE PLACED, ITEM 203.32, "GRANULAR BORROW" SHALL BE USED TO FILL THE VOID UP TO THE ELEVATION 6" BELOW THE BOTTOM OF THE NEW CULVERT.
6. CULVERT SHALL BE CONSTRUCTED ON A SLOPE WHICH MATCHES UPSTREAM AND DOWNSTREAM OF CHANNEL.
7. ITEM 613.06, "STONE FILL, STREAM BED MATERIAL" (E-STONE TYPE I) SHALL BE USED AT THE INLET AND OUTLET OF CULVERTS BEING REPAIRED, REPLACED OR LABELED AS "STABILIZE OUTLET", TO FILL VOIDS OR REPLACE UNSUITABLE MATERIALS IN THE STREAM CHANNEL AS NEEDED. SEE TYPICAL BOX CULVERT SECTIONS FOR MORE INFORMATION.
8. CLEANING AT THE INLET AND OUTLET OF EXISTING CULVERTS TO BE REPLACED SHALL BE INCIDENTAL TO THE REPLACEMENT OF THE CULVERT
9. STONE BOX CULVERTS PROPOSED FOR REPAIR SHALL ENTAIL EXCAVATING AND EXPOSING THE EXISTING STONES AND RESETTING THE STONES AS NECESSARY TO ENSURE THE WATERWAY OPENING IS UNIMPEDED AND THE STONES ARE STRUCTURALLY SOUND.
10. IF ADDITIONAL STONES ARE REQUIRED TO REPAIR A STONE BOX CULVERT, SALVAGED STONES FROM DECONSTRUCTED STONE BOX CULVERTS SHALL BE USED.
11. EXCAVATION TO REPAIR STONE BOX CULVERTS SHALL BE PAID UNDER ITEM 204.25, "STRUCTURE EXCAVATION". REBUILDING OF THE STONE BOX CULVERTS SHALL BE PAID FOR UNDER ITEM 602.35, "REBUILT STONE MASONRY" UNLESS OTHERWISE NOTED IN THE PLANS.
12. GRANULAR BACKFILL FOR STRUCTURES SHALL BE INSTALLED AROUND REPAIRED STONE BOX CULVERTS TO THE LIMITS AS SHOWN IN THE PRECAST BOX CULVERT DETAILS. ALL OTHER BACKFILL SHALL BE MADE WITH ONSITE STRUCTURALLY SUITABLE MATERIALS OR GRANULAR BORROW AS NEEDED.
13. WATER SHALL CONTINUE TO FLOW THROUGH STRUCTURES DURING REPAIR. CONTRACTOR SHALL TAKE CARE TO MINIMIZE SEDIMENT AND DEBRIS FROM ENTERING THE WATERWAY WHILE WORK IS OCCURING.
14. THE REPAIR OF STONE BOX CULVERTS SHALL BE CONDUCTED IN ACCORDANCE WITH THE SECRETARY OF THE INTERIOR'S STANDARDS FOR TREATMENT OF HISTORIC PROPERTIES TO MINIMIZE EFFECTS TO THE HISTORIC RESOURCE'S INTEGRITY. THE PROJECT PLANS SHALL BE REVIEWED AND APPROVED BY INDIVIDUAL(S) WHO MEET THE SECRETARY OF THE INTERIOR'S PROFESSIONAL QUALIFICATIONS STANDARDS FOR ARCHITECTURAL HISTORY. WORK SHALL BE COMPLETED IN ACCORDANCE WITH ANY PLANS AND SPECIFICATIONS DEVELOPED FOR THE PROJECT.
15. THE FUNCTIONAL INTEGRITY OF STRUCTURES DESIGNATED TO BE REPAIRED SHALL BE REPAIRED WHILE RETAINING ITS VISUAL INTEGRITY AS A HISTORICALLY SIGNIFICANT DRY-LAID STONE CULVERT.

	L		D
Pipe Size (in)	Apron Length (ft)	Apron Width (ft)	Apron Depth (ft)
18	9	4.5	1.5
24	11	6	1.5
30	13	7.5	1.5
36	15	9	1.5

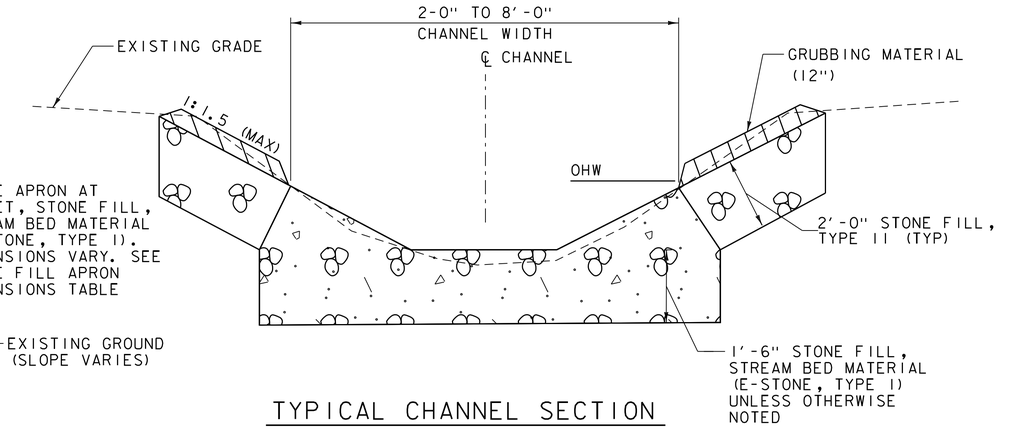
*All dimensions based on E-Stone Type I

STONE FILL APRON DIMENSIONS



SECTION A-A

NOT TO SCALE



TYPICAL CHANNEL SECTION

NOT TO SCALE

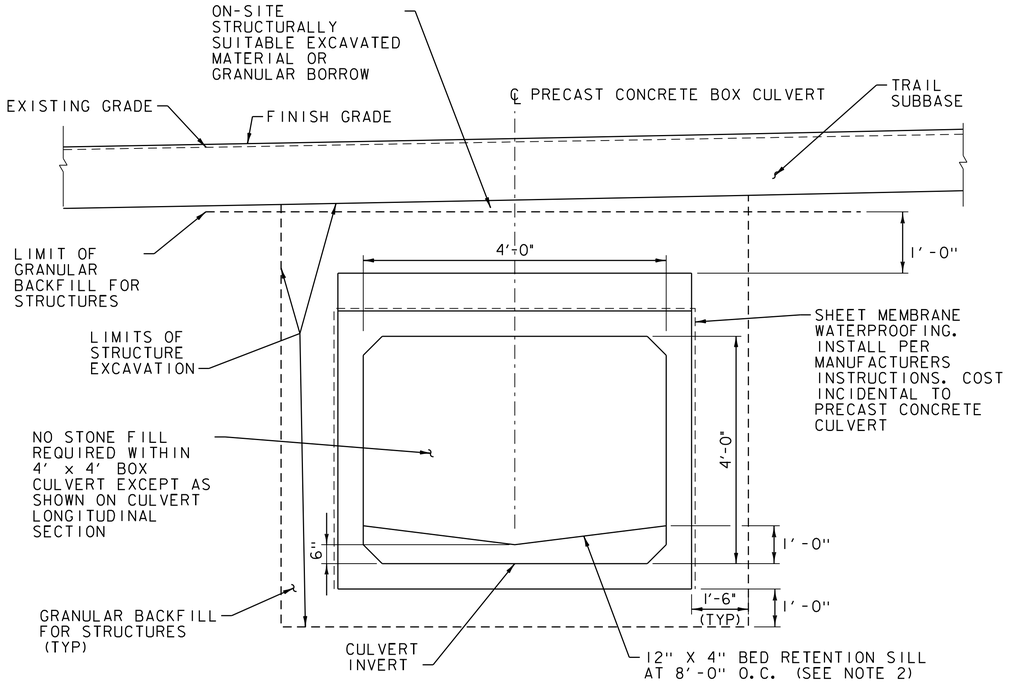
Culvert ID	Station	Existing Size (ft)	Existing Material	Proposed CPEP (SL) Pipe Size (in)	Est. Culvert Length (ft)
27A	922+31	3 x 3	STONE BOX	36.0	74
27(4)E	957+61	1 x 2	STONE BOX	24.0	18
27F	962+14	2.0	CMP	30.0	26
27M	1029+23	2.5	CMP	30.0	22
27O	1041+43	2 x 2	STONE BOX	24.0	34
28B(2)	1092+82	N/A	STONE BOX	24.0	26
28H(A)	1122+73	1.3	CMP	18.0	18
28L(2)	1150+72	N/A	N/A	18.0	18
28M	1156+27	1.7	CAST IRON	18.0	18
29I	1236+97	1.7	CAST IRON	18.0	22
29J	1239+36	1.0	CMP	18.0	22
29K	1248+88	1 x 1	STONE BOX	18.0	34
31C	1291+35	N/A	CMP	18.0	18
31E	1301+65	1.5	CAST IRON	18.0	22
32E	1390+06	2 x 2	STONE BOX	24.0	54
34A	1456+28	1 x 1	STONE BOX	24.0	34
36A	1570+49	3 x 3	STONE BOX	36.0	54
36C	1585+74	1.0	CAST IRON	24.0	26
36H(2)	1613+95	N/A	N/A	18.0	18
36I(2)	1633+10	1.5	CMP	18.0	18
36J	1645+07	2.0	CAST IRON	24.0	26
37E	1733+73	3 x 3	STONE BOX	36.0	54
37G	1749+14	1.0	STONE BOX	24.0	18
38A(1)	1766+02	N/A	N/A	18.0	18
38B(2)	1773+53	N/A	N/A	18.0	18
39A	1797+68	3 x 3	STONE BOX	24.0	26
40B	1818+52	3 x 3	STONE BOX	36.0	62

CULVERT SUMMARY (ROUND PIPE)

PROJECT NAME: SWANTON - ST. JOHNSBURY
PROJECT NUMBER: STP LVRT(13)

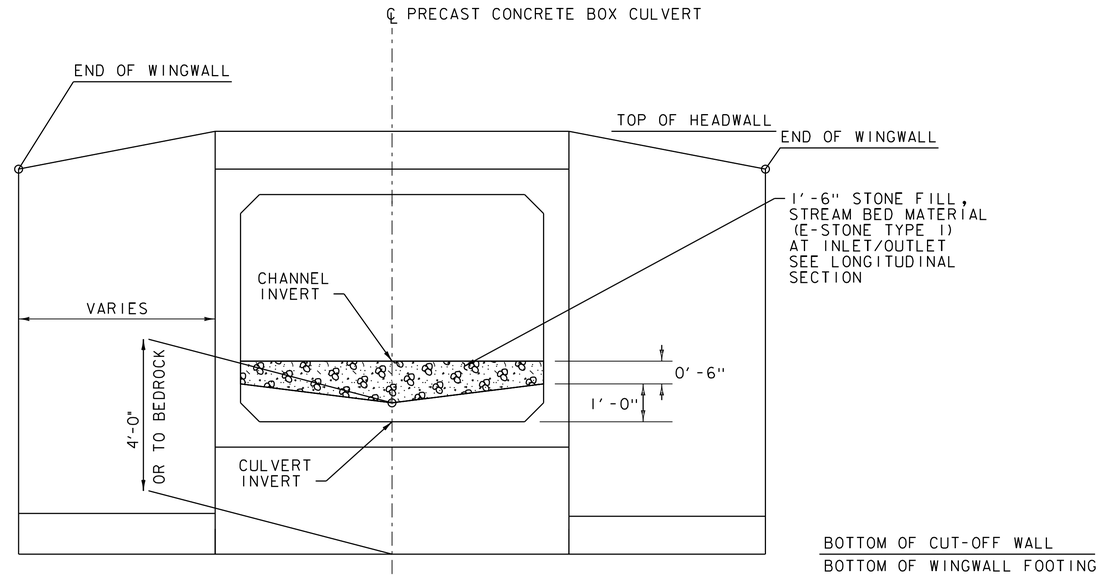
FILE NAME: z20f239_typ_culvert.dgn
PROJECT LEADER: E.P. DETRICK
DESIGNED BY: J.M. DUFFY
TYPICAL CULVERT SECTION SHEET

PLOT DATE: 4/30/2021
DRAWN BY: J.M. DUFFY
CHECKED BY: E.P. DETRICK
SHEET 13 OF 93



TYPICAL 4 X 4 PRECAST BOX CULVERT SECTION

NOT TO SCALE



TYPICAL INLET/OUTLET ELEVATION VIEW

NOT TO SCALE

Culvert ID	Station	Existing Size (ft)	Existing Material	Proposed Concrete Box Size (ft)	Est. Culvert Length (ft)
28P	1176+52	2 x 2	STONE BOX	4 x 4	54
31G	1323+88	2 x 2	WOOD AND STONE	4 x 4	42
37	1702+78	6 x 6	STONE CATTLEPASS	8 x 6	41

BOX CULVERT SUMMARY

E-STONE NOTES:

1. E-STONE TYPE I SHALL BE USED BELOW OHW AND AS AN EMBEDMENT MATERIAL IN BOX STRUCTURES WITH A VERTICAL CLEARANCE OF 6' OR GREATER.
2. STONE PLACED INSIDE OF A CLOSED STRUCTURE SHALL BE PLACED SUCH THAT THE STRUCTURE IS NOT DAMAGED.
3. CARE SHALL BE TAKEN TO LIMIT SEGREGATION OF THE MATERIALS
4. ADD NATIVE STREAMBED MATERIAL OR SAND BORROW AS NEEDED TO SEAL THE BED AND PREVENT SUBSURFACE FLOW. COST OF NATIVE MATERIAL AND SAND BORROW IS INCIDENTAL TO STONE FILL, STREAM BED MATERIAL.
5. THERE SHALL BE NO SUBSURFACE FLOW UPON FINAL INSPECTION.

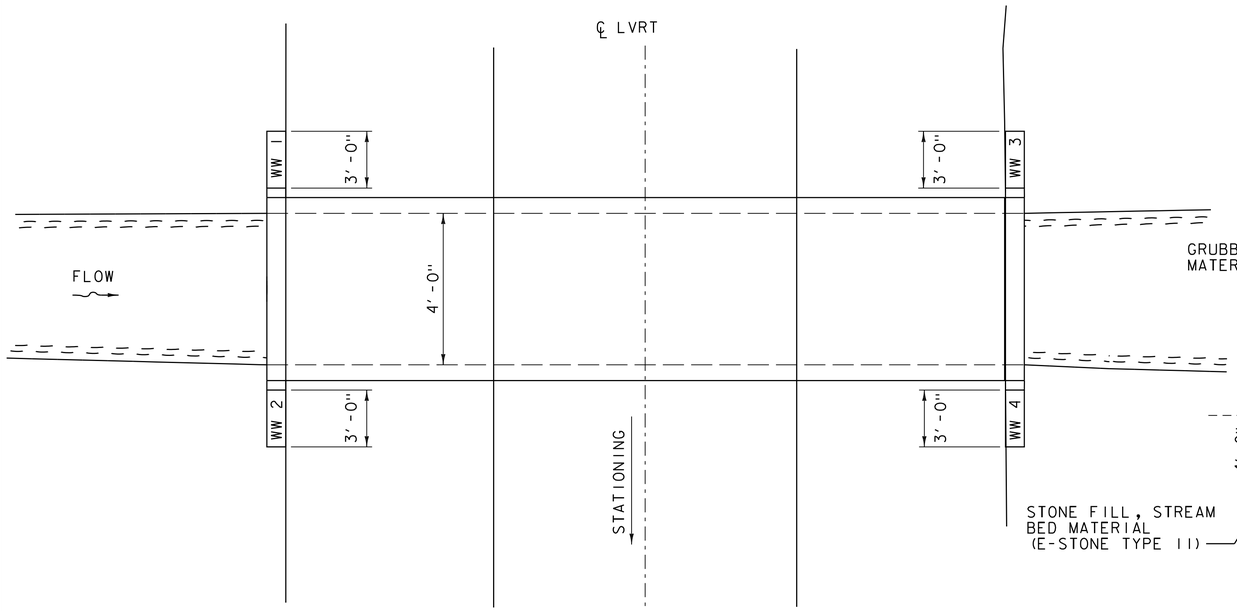
NOTES:

1. BURY BOX CULVERT INVERT MINIMUM 1'-6" BELOW PROPOSED CHANNEL INVERT TO ALLOW RETENTION OF BED MATERIALS WITHIN THE STRUCTURE .
2. BED RETENTION SILLS SHALL BE 12" HIGH AT THE EDGES OF THE BOX AND 6" HIGH IN THE CENTER. SILLS SHALL BE 4" THICK AND SHALL HAVE A POSITIVE CONNECTION TO PRECAST BOX. SILLS SHALL BE PLACED NO MORE THAN 8 FEET APART THROUGHOUT THE STRUCTURE WITH ONE SILL PLACED AT BOTH THE INLET AND OUTLET.
3. TYPICAL CHANNEL SECTION TO BE CONSTRUCTED TO TIE PROPOSED STRUCTURE INTO EXISTING CHANNEL (SEE TYPICAL CULVERT SECTION SHEET).
4. SEE NOTES ON "TYPICAL CULVERT SECTION SHEET" FOR ADDITIONAL CULVERT REPLACEMENT / INSTALLATION NOTES.
5. PROPOSED CULVERT LENGTHS TO BE FIELD VERIFIED BY CONTRACTOR PRIOR TO ORDERING MATERIALS.
6. BOX CULVERTS ON ANY PERENNIAL STREAM SHALL BE REVIEWED IN THE FIELD WITH PATRICK ROSS, VT DEC RIVER MANAGEMENT ENGINEER. CONSTRUCTION SURVEY WILL BE REQUIRED TO APPROPRIATELY SET THE STRUCTURE GRADIENT AND INVERT ELEVATIONS. COSTS ASSOCIATED WITH THIS WORK SHALL BE INCIDENTAL TO THE COST OF THE BOX CULVERT.
7. SHEET MEMBRANE WATERPROOFING SHALL MEET THE REQUIREMENTS OF SPECIFICATION SECTION 726.11(C), WATERPROOFING MEMBRANE SYSTEM, TYPE III.

PROJECT NAME: SWANTON - ST. JOHNSBURY
PROJECT NUMBER: STP LVRT(13)

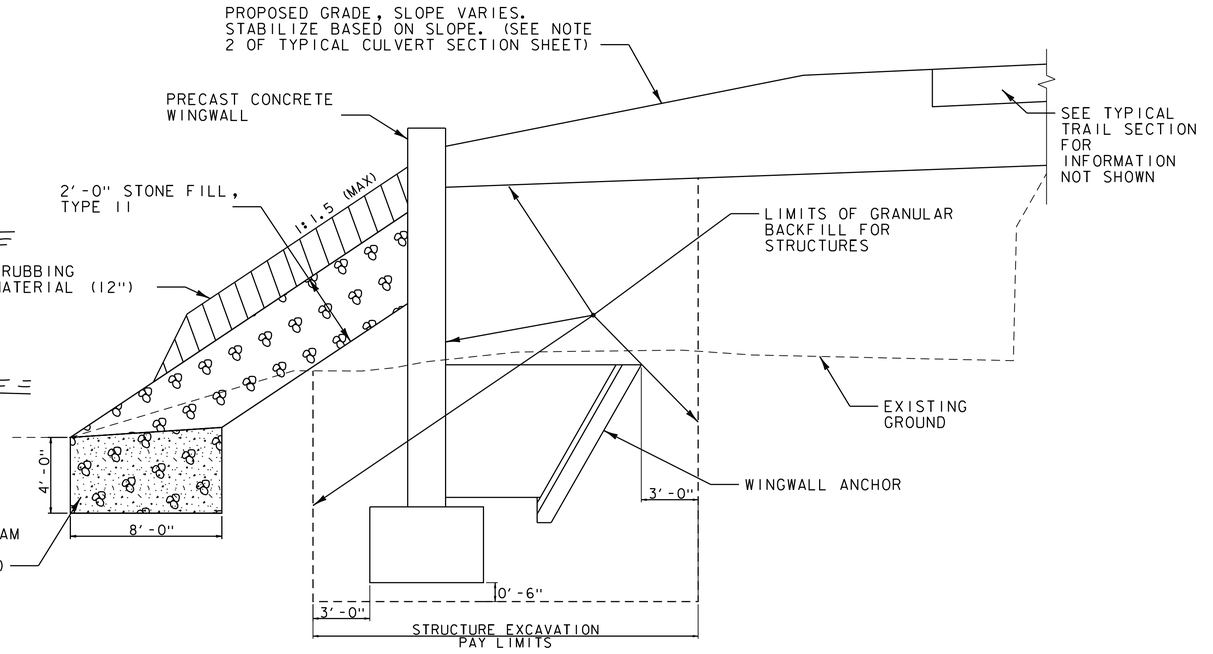
FILE NAME: z20f239_typ_box_culvert.dgn
PROJECT LEADER: E.P.DETRICK
DESIGNED BY: J.M. DUFFY
TYPICAL BOX CULVERT SHEET (1 OF 2)

PLOT DATE: 4/30/2021
DRAWN BY: J.M. DUFFY
CHECKED BY: B.M. ROBERTS
SHEET 14 OF 93



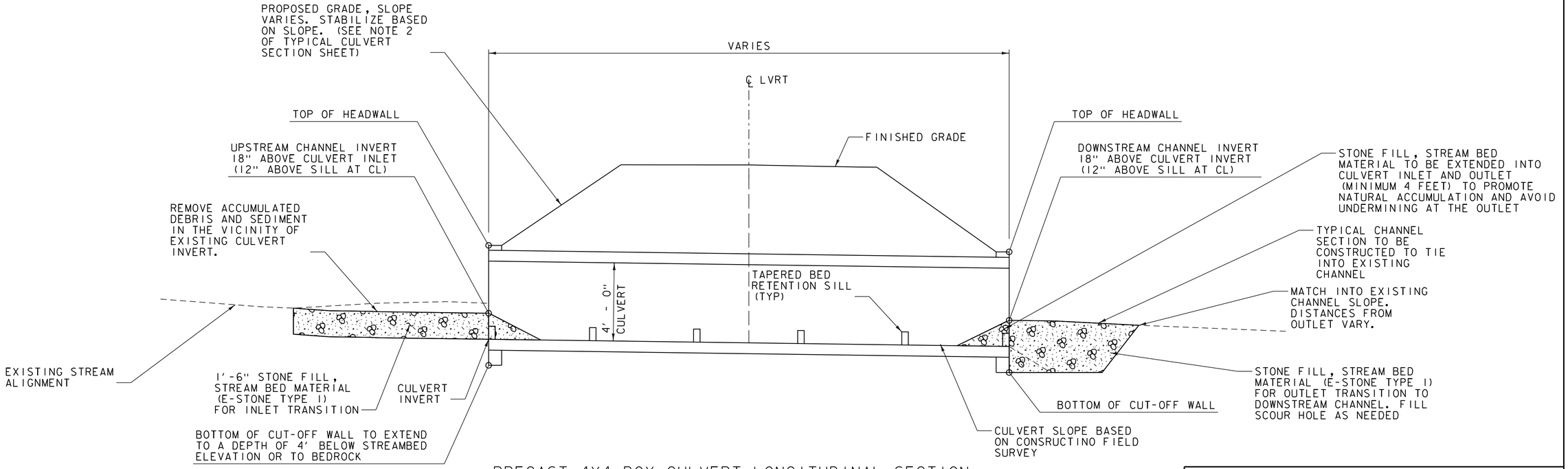
PRECAST 4X4 BOX CULVERT PLAN

NOT TO SCALE



TYPICAL PRECAST CONCRETE WINGWALL EXCAVATION SECTION

NOT TO SCALE

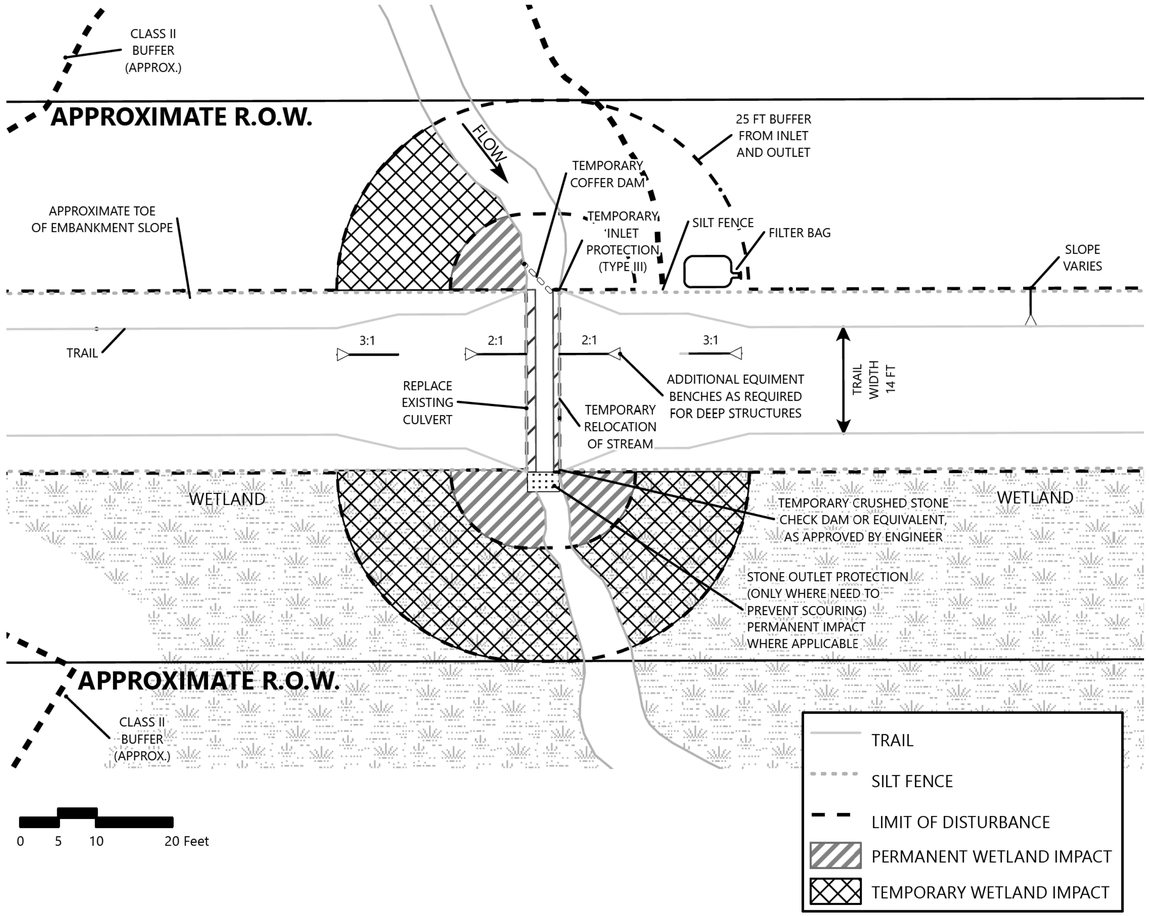


PRECAST 4X4 BOX CULVERT LONGITUDINAL SECTION

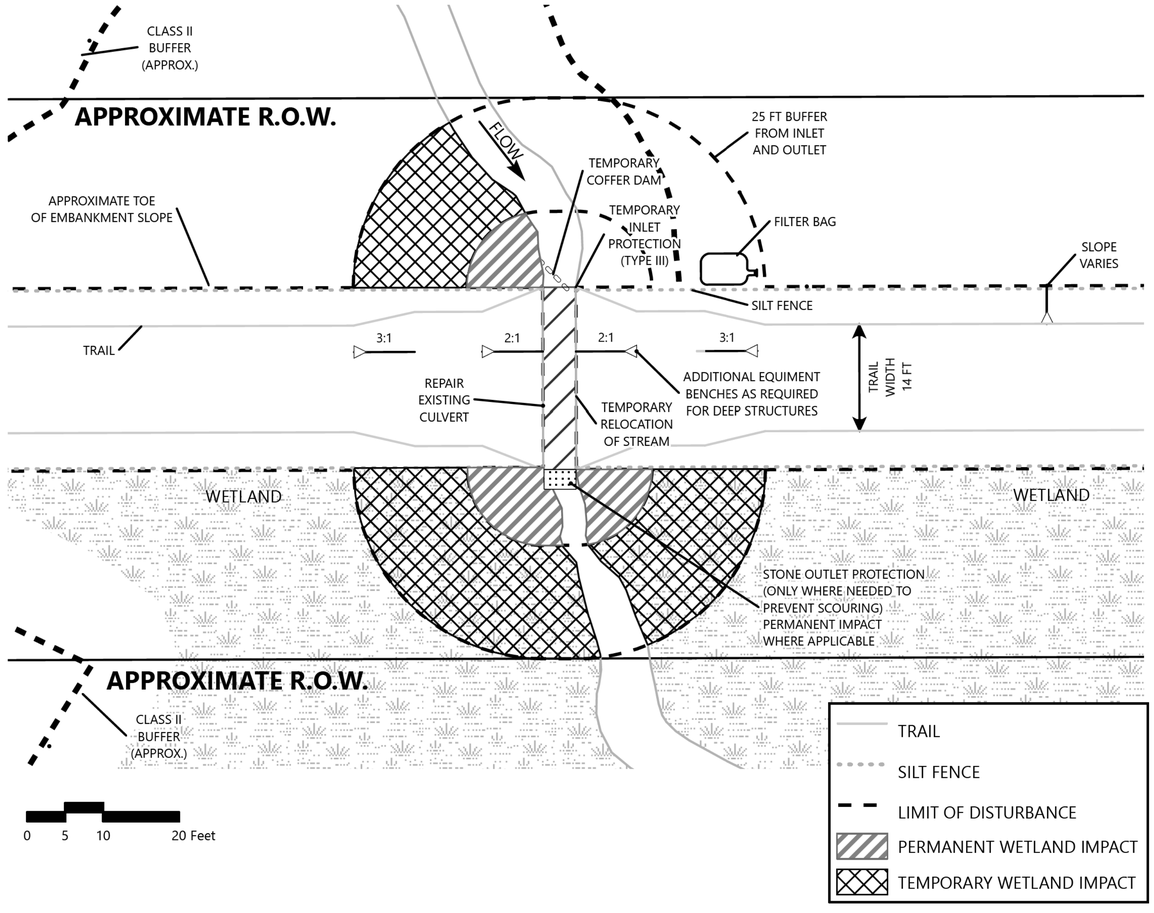
NOT TO SCALE

PROJECT NAME:	SWANTON - ST. JOHNSBURY
PROJECT NUMBER:	STP LVRT(13)
FILE NAME: z20f239_pro_box_culvert.dgn	PLOT DATE: 4/30/2021
PROJECT LEADER: E.P. DETRICK	DRAWN BY: J.M. DUFFY
DESIGNED BY: J.M. DUFFY	CHECKED BY: B.M. ROBERTS
TYPICAL BOX CULVERT SHEET (2 OF 2)	SHEET 15 OF 93

CULVERT REPLACEMENT TYPICAL



CULVERT REPAIR TYPICAL



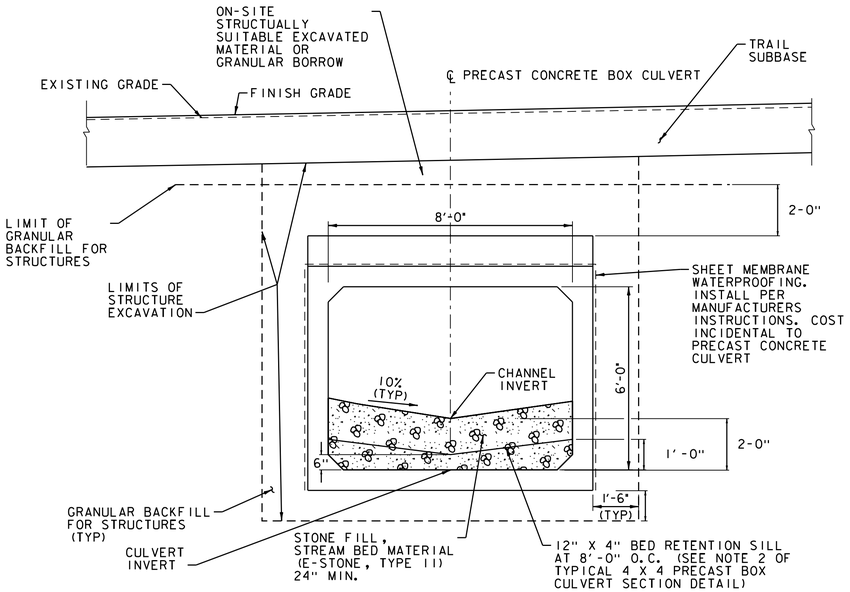
NOTES:

1. ALL WORK TO BE PERFORMED FROM TRAIL EMBANKMENT WHERE FEASIBLE.
2. APPROXIMATE IMPACT AREAS AT CULVERT INLET/OUTLET HAVE BEEN ASSUMED TO ACCOUNT FOR EQUIPMENT ACCESS AND ANY WORK REQUIRED TO COMPLETE THE IMPROVEMENTS. THESE IMPACTS SHALL BE MINIMIZED TO THE EXTENT PRACTICABLE IN THE FIELD.
3. REPAIR OR REPLACEMENT OF EXISTING CULVERTS SHALL BE PERFORMED IN DRY CONDITIONS TO THE EXTENT PRACTICABLE.
4. INSTALL TEMPORARY STREAM DIVERSION AND OTHER WATER CONTROL MEASURES AS NEEDED PRIOR TO EXCAVATION OF IN-STREAM MATERIALS OR REMOVAL OF EXISTING STRUCTURES.
5. LOCATION AND TYPE OF SEDIMENT CONTROL PRACTICES SHOWN ABOVE ARE FOR REFERENCE ONLY. ADDITIONAL MEASURES MAY BE REQUIRED TO MINIMIZE POTENTIAL SEDIMENT RELEASE.
6. SEE ITEM DETAIL SHEETS AND LAYOUT PLANS FOR LOCATIONS WHERE THESE DETAILS ARE TO BE APPLIED.
7. WETLAND AREA DISTURBED DURING CONSTRUCTION SHALL BE SEEDED WITH WET AREA SEED MIX AND MULCHED WITH WEED FREE STRAW.

PROJECT NAME: SWANTON - ST JOHNSBURY
PROJECT NUMBER: STP LVRT(13)

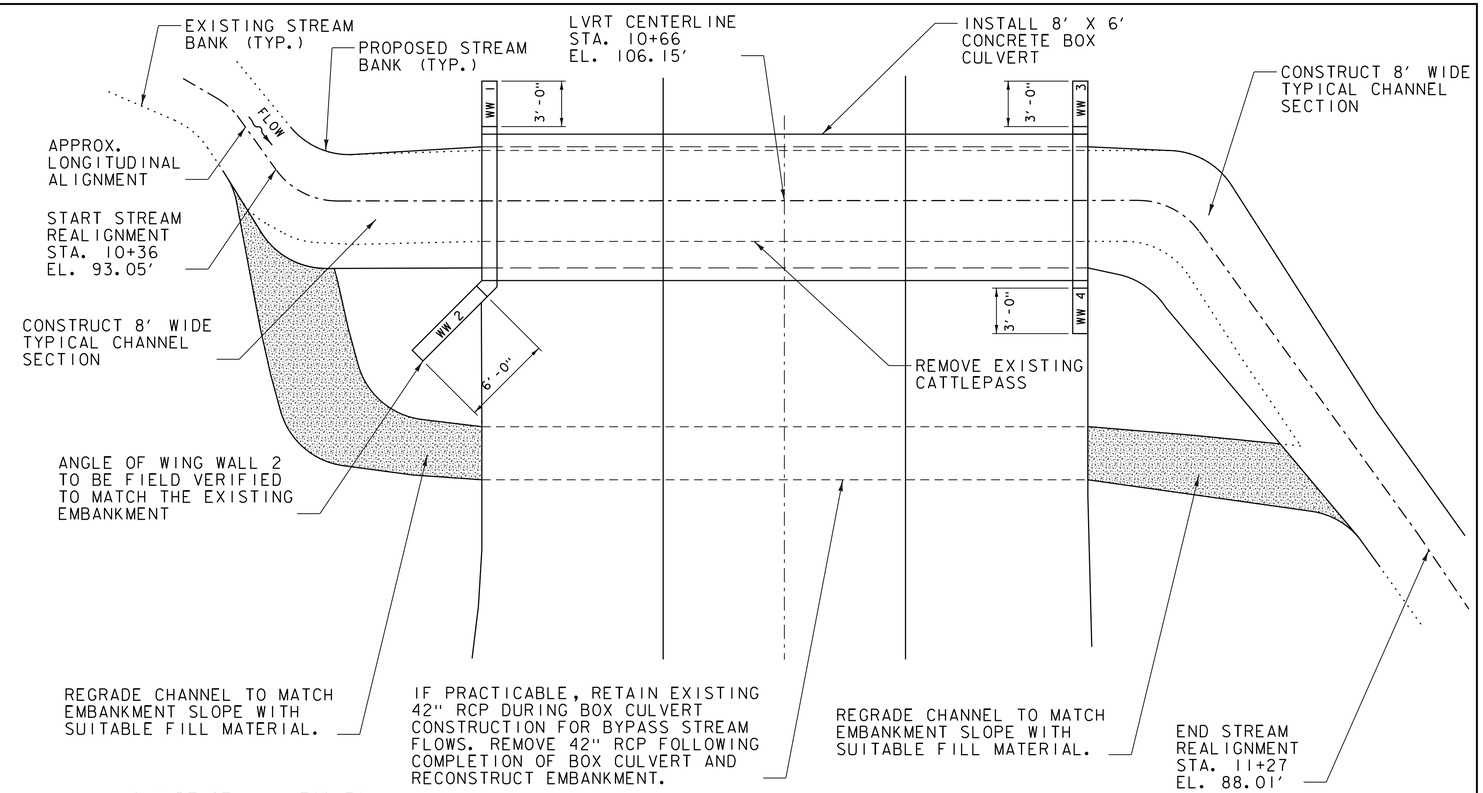
FILE NAME: z20f239_culvert_repair.dgn
PROJECT LEADER: E.P DETRICK
DESIGNED BY: J.M. DUFFY
CULVERT REPLACEMENT/REPAIR TYP. DETAIL

PLOT DATE: 4/30/2021
DRAWN BY: J. GROSSMAN
CHECKED BY: J.M. DUFFY
SHEET 16 OF 93



CULVERT 37 BOX CULVERT SECTION

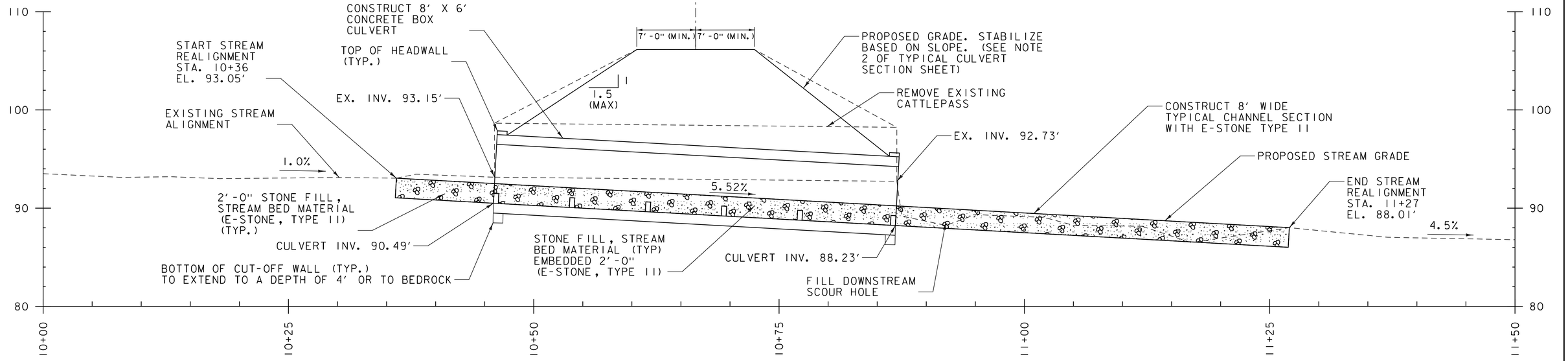
NOT TO SCALE



℄ LVRT STA. = 1702+78
STREAM ALIGN. STA. = 10+66
TRAIL EL. = 106.15'

CULVERT 37 PLAN VIEW

NOT TO SCALE



CULVERT 37 LONGITUDINAL SECTION

ELEVATIONS ARE APPROXIMATE AND BASED ON A LOCAL RELATIVE DATUM. CONSTRUCTION ELEVATIONS SHALL BE BASED OFF THE EXISTING CONCRETE CATTLEPASS INLET INVERT WITH AN ASSUMED ELEVATION OF 93.15'.

0 5 10
SCALE IN FEET

vhb

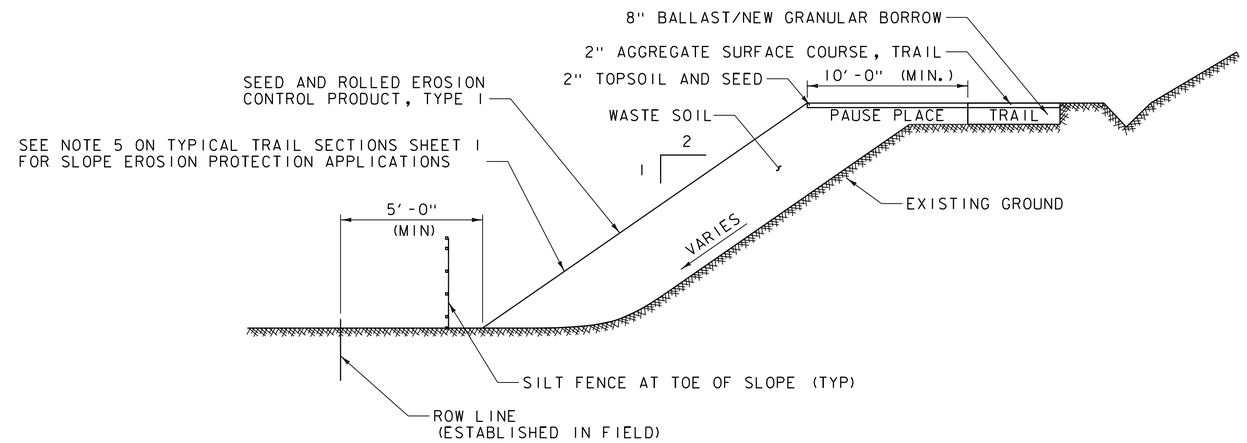
PROJECT NAME: SWANTON - ST. JOHNSBURY
PROJECT NUMBER: STP LVRT(13)

FILE NAME: z20f239_culvert37.dgn
PROJECT LEADER: E.P. DETRICK
DESIGNED BY: J.M. DUFFY
CULVERT 37 DETAIL SHEET

PLOT DATE: 4/30/2021
DRAWN BY: J.M. DUFFY
CHECKED BY: B.M. ROBERTS
SHEET 17 OF 93

NOTES:

1. ALL EXCAVATED MATERIAL SHALL BE SPOILED ON SITE EITHER WITHIN CONSTRUCTION OF THE TRAIL, PAUSE PLACE LOCATIONS OR WASTE AREA MOUNDS.
2. STRUCTURALLY SUITABLE MATERIAL EXCAVATED DURING CONSTRUCTION SHALL BE USED IN PLACE OF GRANULAR BORROW PRIOR TO BEING SPOILED ON SITE.
3. PAUSE PLACES ARE CONSTRUCTED TRAIL PULL-OFF AREAS WHERE EXCESS MATERIAL FROM DITCHING CAN BE WASTED.
4. PAUSE PLACES SHALL NOT BLOCK DRAINAGE SWALES.
5. PAUSE PLACES SHALL NOT INTERSECT ROAD CROSSINGS AT FULL WIDTH TO AVOID PROVIDING UNWANTED PARKING AREAS FOR PATH USERS.
6. PAUSE PLACES SHALL NOT INTERSECT DELINEATED WETLANDS, WETLAND BUFFERS, STREAMS AND FEMA FLOOD HAZARD AREAS.
7. INSTALL SILT FENCE AND OTHER EPSC MEASURES DOWNGRADIENT FROM WORK AREA PRIOR TO PLACEMENT OF EXCESS MATERIAL.
8. TEMPORARILY STABILIZE WASTE SOIL WITHIN 14 DAYS OF INITIAL DISTURBANCE/PLACEMENT AND WITHIN 48 HOURS OF FINAL GRADING/SHAPING. MAINTAIN UNTIL SITE IS FULLY STABILIZED.
9. SILT FENCE TYPE II REQUIRED WITHIN 100 FEET OF A WATERBODY OR WETLAND.
10. FISH AND WILDLIFE PAUSE PLACE LOCATIONS TO BE CONSTRUCTED FOLLOWING PAUSE PLACE GUIDELINES EXCEPT FOR MINIMUM LENGTH REQUIREMENTS.
11. SLOPE SHALL BE CLEARED, NOT GRUBBED PRIOR TO PLACEMENT.
12. PLACEMENT OF WASTING MATERIAL SHALL BE INCIDENTAL TO ALL CONTRACT ITEMS.
13. WASTE AREA MOUNDS MAY BE CONSTRUCTED ATOP APPROVED PAUSE PLACE LOCATIONS INDICATED BY AN ASTERISK (*). THIS METHOD TO SPOIL ADDITIONAL MATERIAL SHALL NOT BE UTILIZED UNTIL ALL OTHER SOIL WASTING METHODS HAVE BEEN EXHAUSTED WITHIN THE PROJECT.



WASTE AREA ON EMBANKMENT SHOULDERS

NOT TO SCALE

PAUSE PLACE LOCATIONS

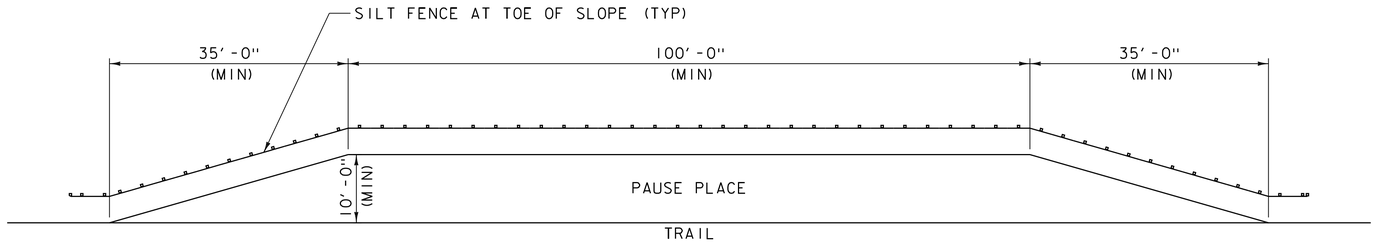
(STATIONING DOES NOT INCLUDE TAPERS)

* 909+92 - 911+92, LT
919+27 - 920+77, LT/RT
1028+52 - 1030+02, LT/RT
1042+42 - 1045+42, RT
1075+22 - 1076+22, LT
* 1091+22 - 1092+72, LT
1107+17 - 1108+67, RT
* 1142+67 - 1144+17, LT
1157+72 - 1159+72, LT
1177+82 - 1179+82, LT
1246+82 - 1247+82, LT
1307+62 - 1308+62, LT
1392+02 - 1393+52, LT
1415+57 - 1417+57, LT
1451+02 - 1452+02, RT
1519+17 - 1521+92, RT
1608+32 - 1610+82, LT
1643+62 - 1644+62, RT
1674+52 - 1677+52, LT
1754+17 - 1755+67, LT/RT
1797+67 - 1799+17, LT

FISH AND WILDLIFE PAUSE PLACE LOCATIONS

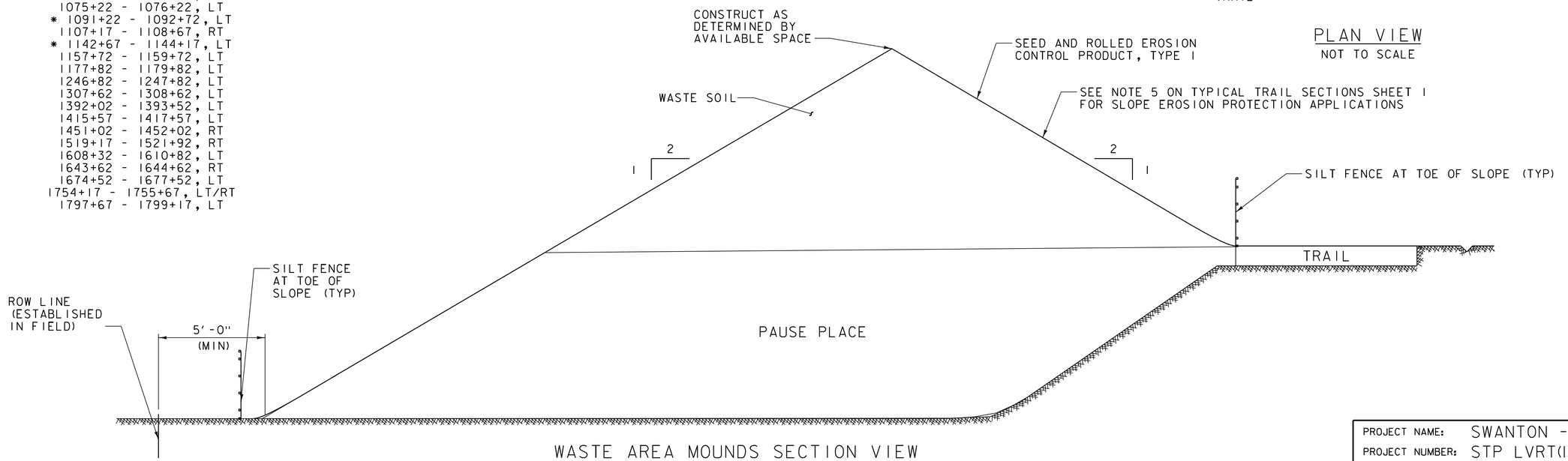
(STATIONING DOES NOT INCLUDE TAPERS)

1564+50 - 1565+25, LT



PLAN VIEW

NOT TO SCALE



WASTE AREA MOUNDS SECTION VIEW

NOT TO SCALE

PROJECT NAME:	SWANTON - ST. JOHNSBURY
PROJECT NUMBER:	STP LVRT(13)
FILE NAME: z20f239_typ_waste_area.dgn	PLOT DATE: 4/30/2021
PROJECT LEADER: E.P. DETRICK	DRAWN BY: B.M. ROBERTS
DESIGNED BY: B.M. ROBERTS	CHECKED BY: E.P. DETRICK
WASTE AREA DETAILS SHEET	SHEET 18 OF 93

ETIQUETTE SIGN #1
NOT TO SCALE

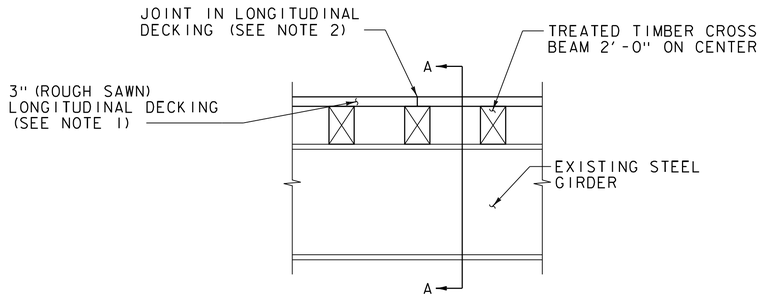
TRAIL COURTESY SIGN
NOT TO SCALE

NOTES:

1. TRAIL ETIQUETTE SIGNS SHALL BE LOCATED AT ALL PUBLIC TRAIL ACCESS POINTS, NOT INCLUDING ROAD CROSSINGS.
2. SIGNS SHALL BE 0.080" THICK FLAT SHEET ALUMINUM IN ACCORDANCE WITH SUBSECTION 750.03
3. SIGNS SHALL BE PAID UNDER ITEM 675.20, "TRAFFIC SIGNS, TYPE A".
4. "TRAIL ETIQUETTE" SIGN TO BE COLORED AS FOLLOWS:
   - BACKGROUND - WHITE, NON-RETROREFLECTIVE
   - "VERMONT", "LAMOILLE VALLEY RAIL TRAIL" AND CONTACT TEXT - FEDERAL COLOR CHIP 24115
   - MOUNTAIN BACKGROUND - FEDERAL COLOR CHIP 24115
   - ALLOWABLE USES BACKGROUND - FEDERAL COLOR CHIP 24115
   - ACTION SIGNS - FEDERAL COLOR CHIP 20055
5. "TRAIL COURTESY" SIGN TO BE COLORED AS FOLLOWS:
   - BACKGROUND - WHITE, NON-RETROREFLECTIVE
   - TEXT - FEDERAL COLOR CHIP 24115
   - MOUNTAIN BACKGROUND - FEDERAL COLOR CHIP 24115
   - ACTION SIGNS - FEDERAL COLOR CHIP 24115

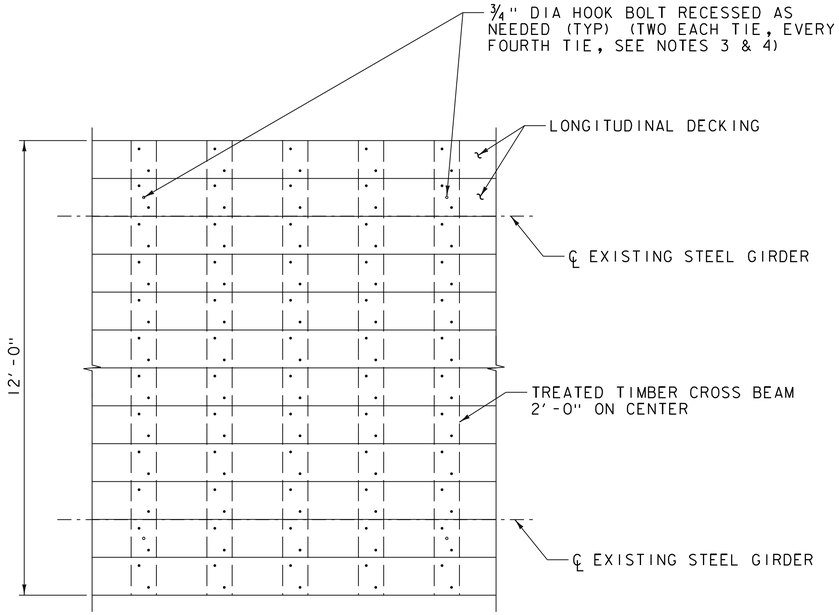
vhb

PROJECT NAME: SWANTON - ST JOHNSBURY	
PROJECT NUMBER: STP LVRT(13)	
FILE NAME: z20f239_etiquette_signs.dgn	PLOT DATE: 4/30/2021
PROJECT LEADER: E.P. DETRICK	DRAWN BY: K.C. BARRY
DESIGNED BY: VAST	CHECKED BY: E.P. DETRICK
ETIQUETTE SIGNS SHEET	SHEET 36 OF 93



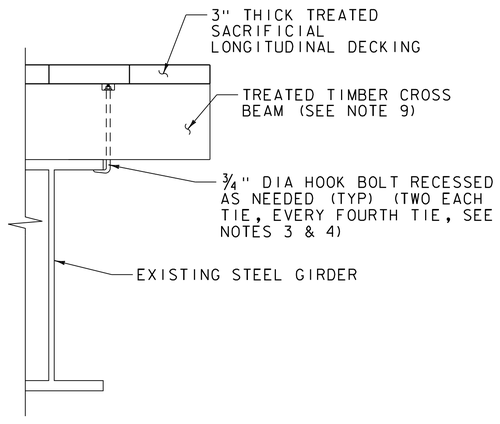
TYPICAL DECKING SECTION

SCALE ½" = 1'-0"



DECK LAYOUT

SCALE ½" = 1'-0"



SECTION A-A

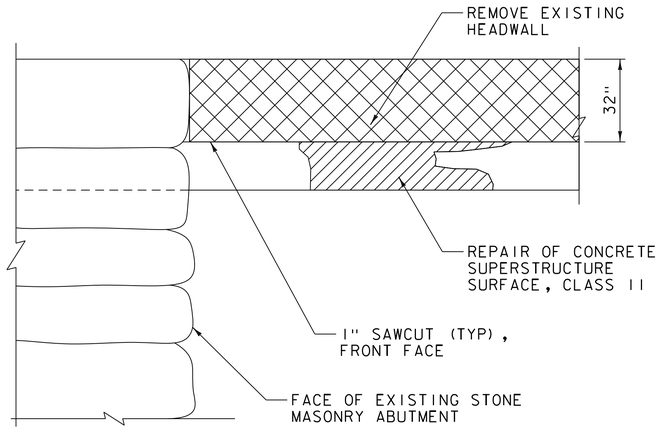
SCALE 1" = 1'-0"

NOTES:

1. 3" THICK TREATED SACRIFICIAL LONGITUDINAL DECKING SHALL HAVE ⅜" MAX GAP BETWEEN DRY TIMBER PLANKS. SEE ITEM 900.670, "SPECIAL PROVISION (DECKING)" FOR MORE INFORMATION.
2. TIMBER DECKING JOINTS SHALL OCCUR AT TREATED TIMBER CROSS BEAM LOCATIONS. JOINTS SHALL BE STAGGERED SUCH THAT NO TWO JOINTS ARE ADJACENT.
3. HOOK BOLTS SHALL BE RECESSED SUCH THAT TOP OF BOLT IS FLUSH WITH TOP OF TIE. RECESSED HOLES SHALL BE FILLED WITH EPOXY AFTER BOLT INSTALLATION. HOOK BOLTS ARE TO BE INSTALLED ON NEW TREATED TIMBER CROSS BEAMS.
4. PRE-BORE HOLES FOR ALL HOOK BOLTS.
5. CONNECTIONS TO BE MADE WITH ¼" x 5" LONG SCREWS WITH A 5/16" HEX WITH OVERSIZED WASHER HEAD MADE OF TREATED STEEL AND COATED WITH A MULTI-COATED CORROSION PROTECTOR COMPATIBLE WITH ACQ. THE MIN. THREADED LENGTH SHALL BE 2¾". THESE SCREWS SHALL BE COUNTERSUNK A MIN. OF ⅜" AND LOCATED AT END OF EACH PLANK AND TWO AT EACH TIMBER STRINGER. SEE ITEM 900.670, "SPECIAL PROVISION (DECKING)" FOR MORE INFORMATION.
6. COST FOR TREATED TIMBER CROSS BEAMS SHALL BE PAID FOR UNDER ITEM 522.25, "STRUCTURAL LUMBER AND TIMBER, TREATED".
7. DIVOTS CAUSED BY COUNTER SINKING SCREWS IN DECK PLANKS SHALL BE FILLED WITH CAULKING. SEE ITEM 900.670, "SPECIAL PROVISION (DECKING)" FOR MORE INFORMATION ON CAULKING AND METHOD OF INSTALLATION.
8. REMOVAL AND PROPER DISPOSAL OF EXISTING TIES, DECKING, RAILING, AND OTHER REQUIRED DECK COMPONENTS WILL BE PAID UNDER ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE".
9. REFER TO TYPICAL SECTIONS FOR BRIDGES 27, 28, AND 36 FOR ADDITIONAL INFORMATION ON TREATED TIMBER CROSS BEAM DIMENSIONS.

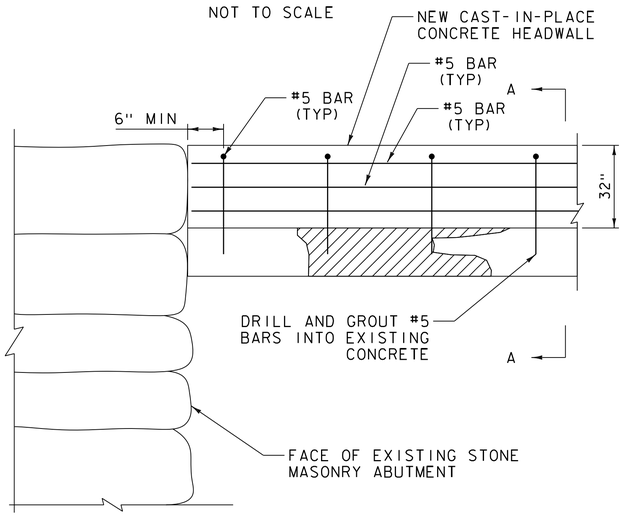
PROJECT NAME: SWANTON - ST. JOHNSBURY
PROJECT NUMBER: STP LVRT(13)

FILE NAME: z20f239_structural_details.dgn PLOT DATE: 4/30/2021
PROJECT LEADER: E.P. DETRICK DRAWN BY: N.A. TRUSLOW
DESIGNED BY: J.D. KEENER CHECKED BY: J.D. KEENER
BRIDGE DECKING DETAILS SHEET 37 OF 93



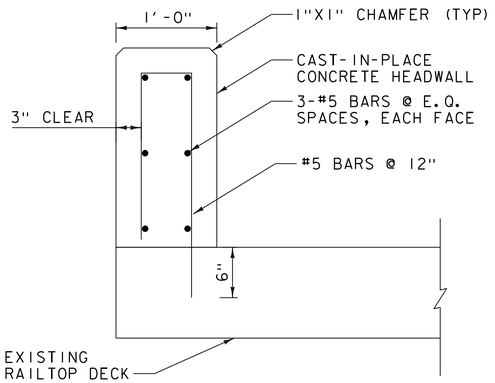
CATTLEPASS 30 EXISTING ELEVATION

NOT TO SCALE



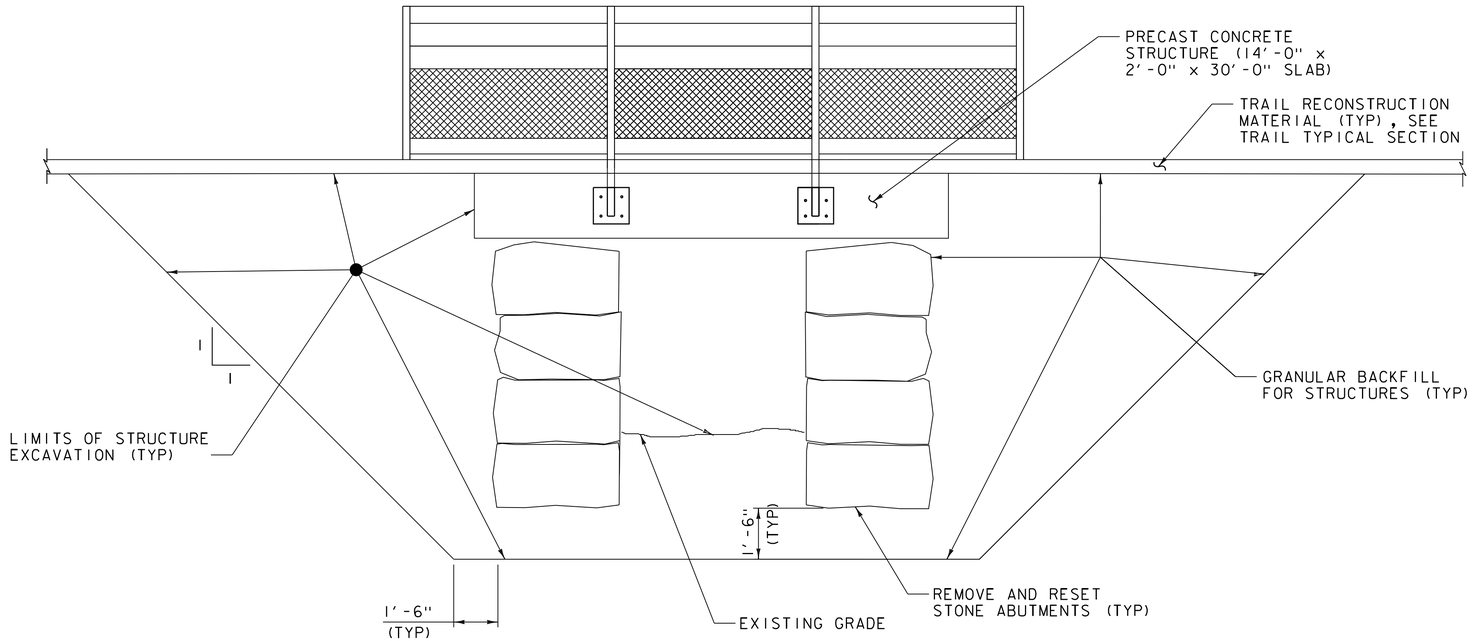
CATTLEPASS 30 PROPOSED ELEVATION

NOT TO SCALE



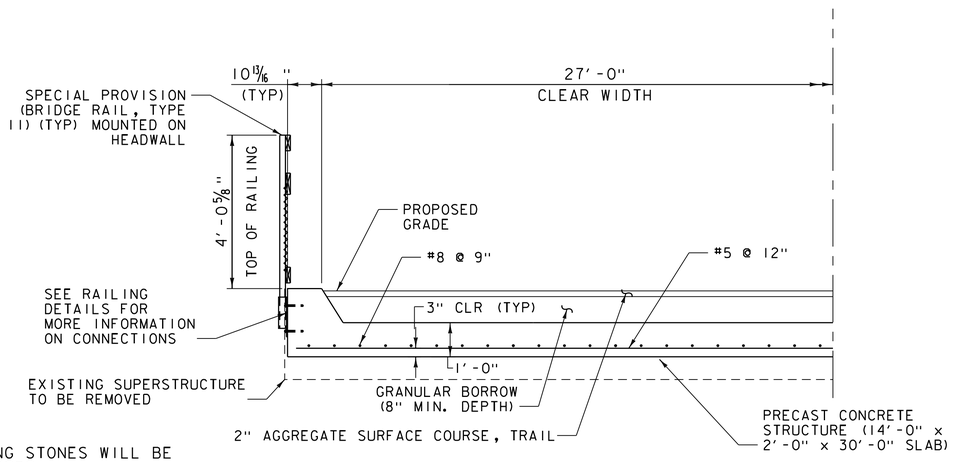
SECTION A-A

NOT TO SCALE



CATTLEPASS 29H PROPOSED ELEVATION

NOT TO SCALE



TYPICAL SECTION (CATTLEPASS 29H)

SCALE: 1/2"=1'-0"

NOTES:

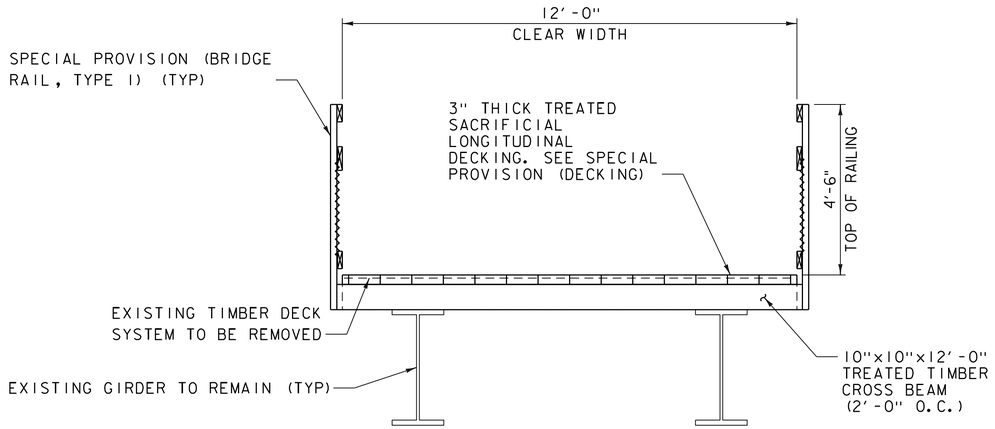
1. PRIOR TO THE START OF CONCRETE REMOVAL, THE RESIDENT ENGINEER AND THE CONTRACTOR SHALL SOUND THE CONCRETE AND AGREE ON REPAIR LIMITS.
2. PAYMENT FOR SUPERSTRUCTURE CONCRETE REPAIR, INCLUDING REPAIR MATERIALS, WILL BE MADE UNDER ITEM 580.11, "REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS II" AS APPROPRIATE.
3. REINFORCING TO BE LEVEL 1 REINFORCING, CAST-IN-PLACE CONCRETE FOR HEADWALLS TO BE CLASS A. SAWCUTTING WILL BE CONSIDERED INCIDENTAL TO CONCRETE ITEM 541.22, "CONCRETE, CLASS A".
4. CONTRACTOR SHALL INSTALL BRIDGE RAILING, TYPE II ON BOTH CONCRETE HEADWALLS. REFER TO DETAILS FOR BRIDGE RAILING, TYPE II FOR ADDITIONAL INFORMATION.
5. MEMBRANE WATERPROOFING, TORCH APPLIED SHALL BE APPLIED TO ALL SURFACES OF THE PRECAST STRUCTURE AND ALL COSTS ASSOCIATED WITH APPLICATION OF WATERPROOFING MEMBRANE WILL BE PAID FOR UNDER ITEM 529.20, "PRECAST CONCRETE STRUCTURE (14'-0" x 2'-0" x 30'-0")".
6. ALL COSTS ASSOCIATED WITH REMOVING AND RESETTING STONES WILL BE PAID FOR UNDER ITEM 602.35, "REBUILT STONE MASONRY".
7. ALL COSTS ASSOCIATED WITH REMOVING EXISTING STONE SUPERSTRUCTURE WILL BE PAID FOR UNDER ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE (CATTLEPASS 29H)".

LEGEND:

APPROXIMATE LIMITS OF CONCRETE REMOVAL

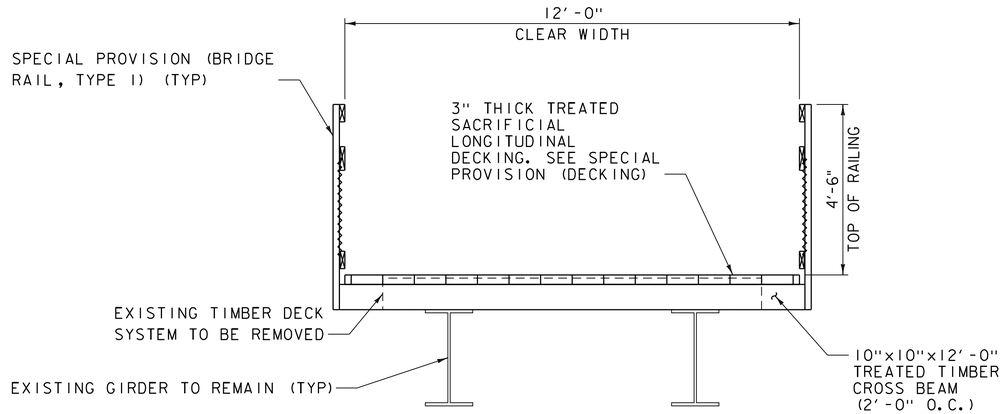
APPROXIMATE LOCATION OF SPALLED CONCRETE TO BE REPAIRED

PROJECT NAME:	SWANTON - ST. JOHNSBURY
PROJECT NUMBER:	STP LVRT(13)
FILE NAME: z20f239_structural_details.dgn	PLOT DATE: 4/30/2021
PROJECT LEADER: E.P. DETRICK	DRAWN BY: N.A. TRUSLOW
DESIGNED BY: J.D. KEENER	CHECKED BY: J.D. KEENER
CATTLEPASS 29H & 30 DETAILS	SHEET 38 OF 93



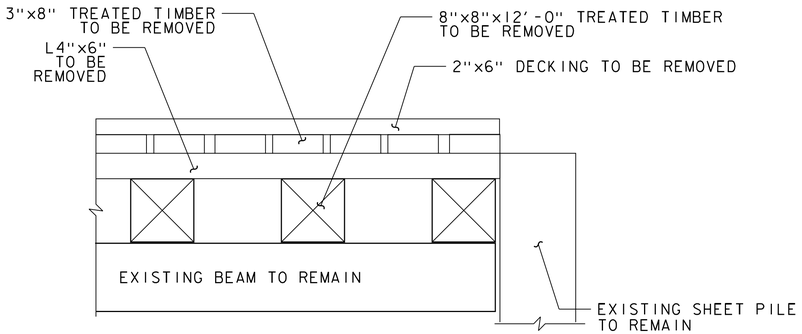
TYPICAL SECTION (BRIDGE 27)

SCALE: ½"=1'-0"



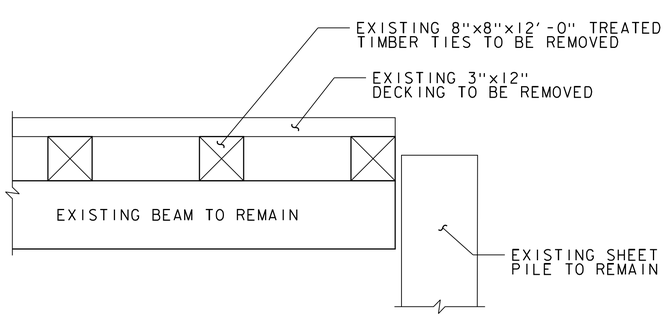
TYPICAL SECTION (BRIDGE 28)

SCALE: ½"=1'-0"



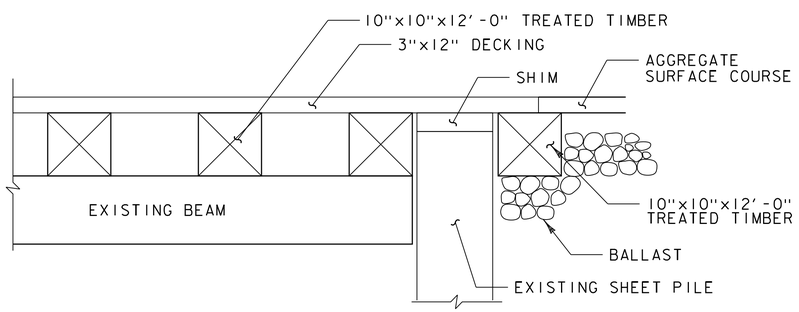
BRIDGE 27 EXISTING BRIDGE END DETAIL

SCALE 1" = 1'-0"



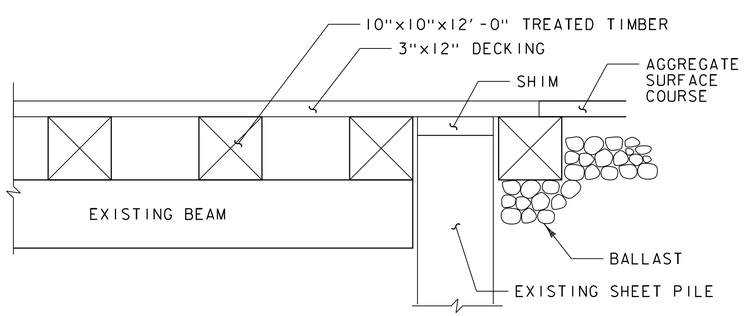
BRIDGE 28 EXISTING BRIDGE END DETAIL

SCALE 1" = 1'-0"



BRIDGE 27 PROPOSED BRIDGE END DETAIL

SCALE 1" = 1'-0"



BRIDGE 28 PROPOSED BRIDGE END DETAIL

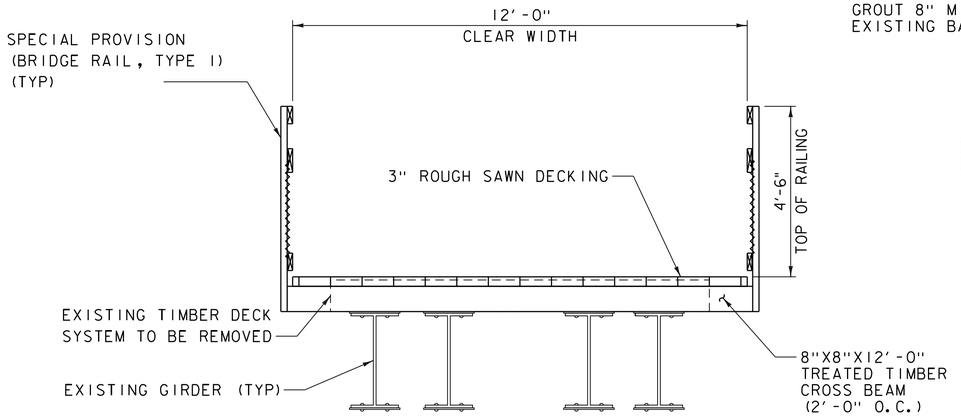
SCALE 1" = 1'-0"

NOTES:

1. FOR BRIDGE 27, THE REMOVAL OF EXISTING TIMBER RAILING SYSTEM, 8"X8"X12'-0" TREATED TIMBERS, 3"X8" TREATED TIMBERS, 2"X6" DECKING AND L4"X6" MEMBERS WILL BE PAID FOR UNDER ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE (BRIDGE 27)".
2. FOR BRIDGE 28, THE REMOVAL OF EXISTING TIMBER RAILING SYSTEM, EXISTING 8"X8"X10'-0" TREATED TIMBER TIES AND 3"X12" DECKING WILL BE PAID FOR UNDER ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE (BRIDGE 28)".
3. CONNECT SHIM TO 3" DECKING WITH ¼"X3" LONG SCREWS WITH A ⅝" HEX WITH OVERSIZED WASHER HEAD MADE OF TREATED STEEL AND COATED WITH A MULTI-COATED CORROSION PROTECTOR COMPATIBLE WITH ACQ. THE MIN. THREADED LENGTH SHALL BE 2 ¾". THESE SCREWS SHALL BE COUNTERSUNK A MIN. OF ¾" AND LOCATED AT END OF EACH DECK PLANK.

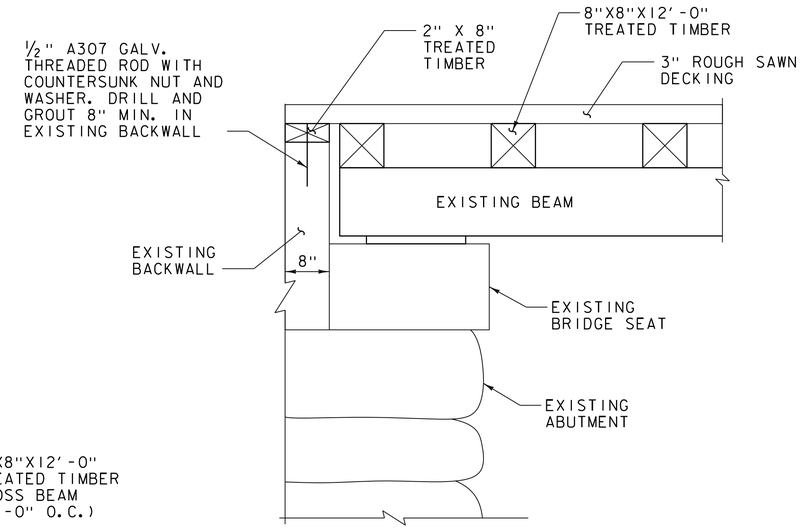
PROJECT NAME: SWANTON - ST. JOHNSBURY
PROJECT NUMBER: STP LVRT(13)

FILE NAME: z20f239_structural_details.dgn PLOT DATE: 4/30/2021
PROJECT LEADER: E.P. DETRICK DRAWN BY: N.A. TRUSLOW
DESIGNED BY: J.D. KEENER CHECKED BY: J.D. KEENER
BR. 27 & 28 TYPICAL SECTIONS AND DETAILS SHEET 39 OF 93



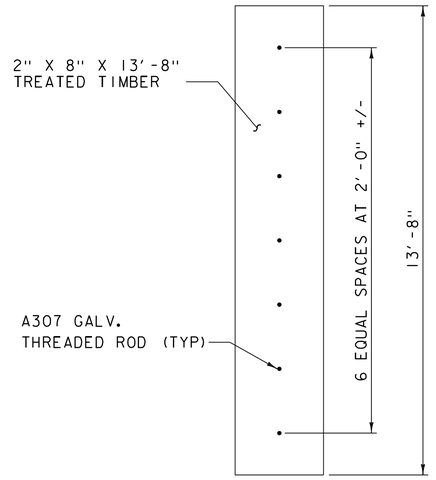
TYPICAL SECTION (BRIDGE 36)

SCALE: ½"=1'-0"



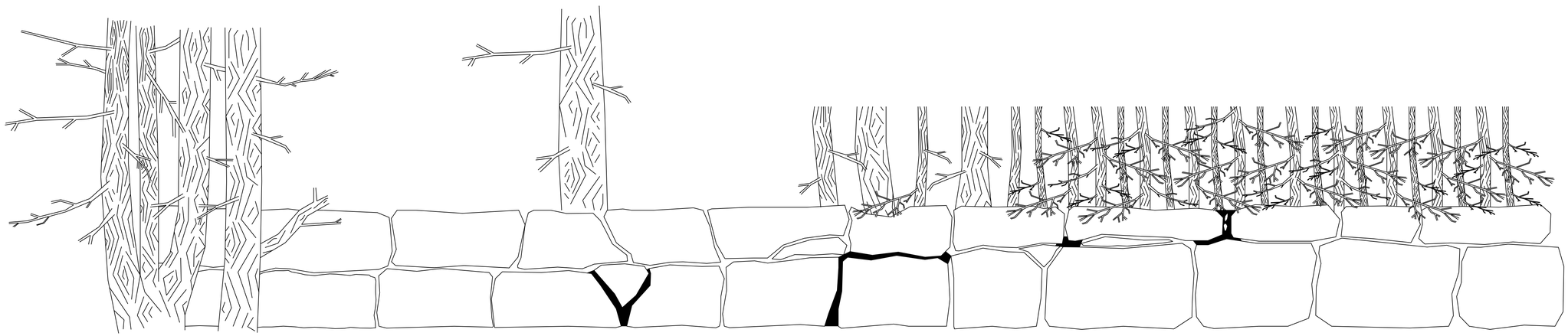
BRIDGE 36 ABUTMENT SECTION

NOT TO SCALE



BRIDGE 36 BACKWALL PLAN

NOT TO SCALE



EXISTING ELEVATION VIEW - BR. 36 SOUTHEAST WINGWALL

NOT TO SCALE

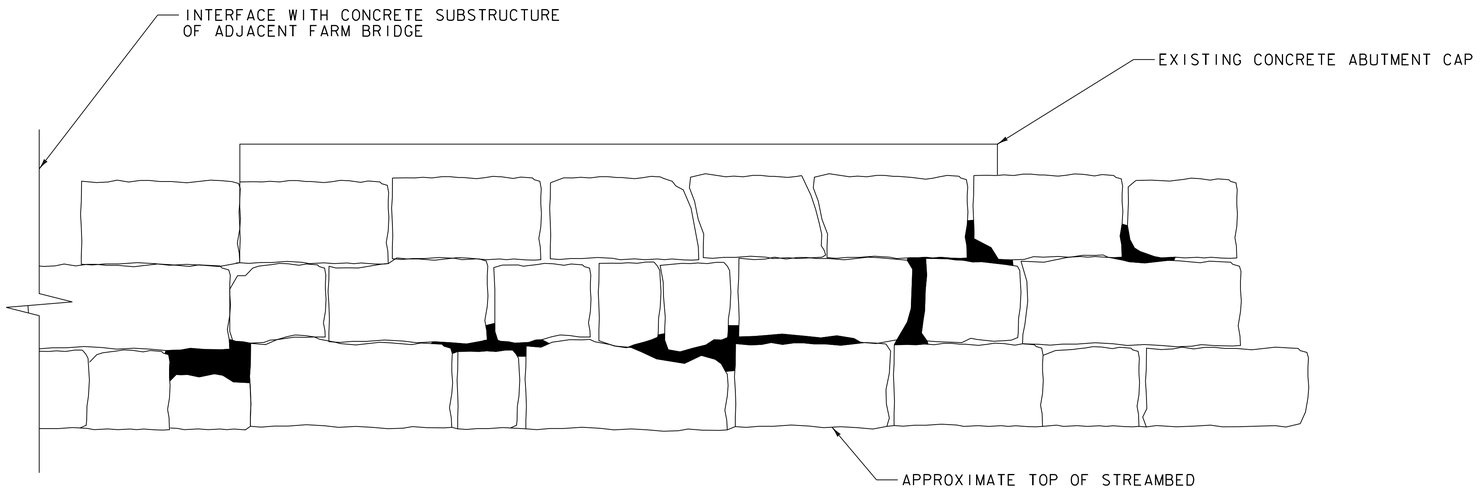
LEGEND:

APPROXIMATE LOCATIONS OF VOIDS TO BE FILLED

NOTES:

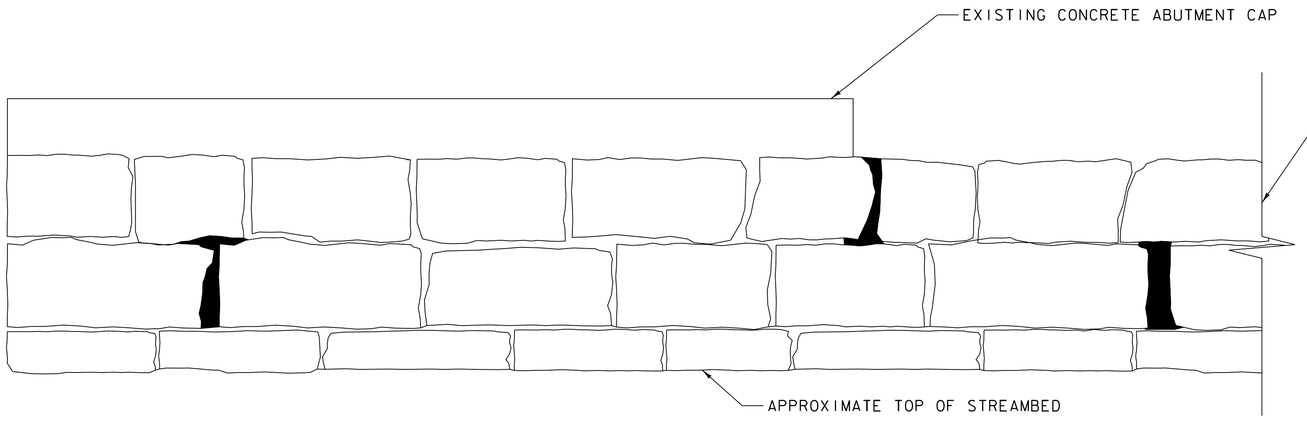
1. THE SOUTHEAST WINGWALL WILL BE UNIVERSALLY REPOINTED USING GROUT. REPOINTING WILL BE PAID FOR UNDER ITEM 602.30, "REPOINTING MASONRY". CONTRACTOR SHALL ATTEMPT TO MATCH THE COLOR OF THE EXISTING POINTING.
2. ALL VOIDS IN THE SOUTHEAST WINGWALL SHALL BE FILLED WITH GROUT. PRIOR TO REPOINTS, CONTRACTOR SHALL REMOVE ALL TREES, SHRUBS, AND TREE OR SHRUB ROOTS FROM THE VOIDS. GROUTING OPERATIONS WILL BE PAID FOR UNDER ITEM 602.40, "REPAIRING STONE MASONRY".
3. PROPOSED WORK SHOWN HAS BEEN ESTIMATED BASED ON LIMITED FIELD INVESTIGATION PERFORMED BY VHB. ACTUAL WORK SHALL BE DETERMINED BY CONTRACTOR AND APPROVED BY RESIDENT ENGINEER.
4. CONTRACTOR SHALL REMOVE ALL TREES AND SHRUBS ABOVE THE SOUTHEAST WINGWALL AND ALL ROOTS OF TREES AND SHRUBS GROWING INTO THE VOIDS BETWEEN THE WINGWALL STONES. ALL COSTS ASSOCIATED WITH THIS WORK WILL BE PAID FOR UNDER ITEM 201.10, "CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS".
5. THE REMOVAL OF EXISTING TIMBER RAILING SYSTEM AND EXISTING TIMBER DECK SYSTEM WILL BE PAID FOR UNDER ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE (BRIDGE 36)".

PROJECT NAME:	SWANTON - ST. JOHNSBURY
PROJECT NUMBER:	STP LVRT(13)
FILE NAME: z20f239_structural_details.dgn	PLOT DATE: 4/30/2021
PROJECT LEADER: E.P. DETRICK	DRAWN BY: N.A. TRUSLOW
DESIGNED BY: J.D. KEENER	CHECKED BY: J.D. KEENER
BR. 36 TYPICAL SECTIONS	SHEET 40 OF 93



EXISTING ELEVATION VIEW - BR. 36 WEST ABUTMENT

SCALE: ½" = 1'-0"



EXISTING ELEVATION VIEW - BR. 36 EAST ABUTMENT

SCALE: ½" = 1'-0"

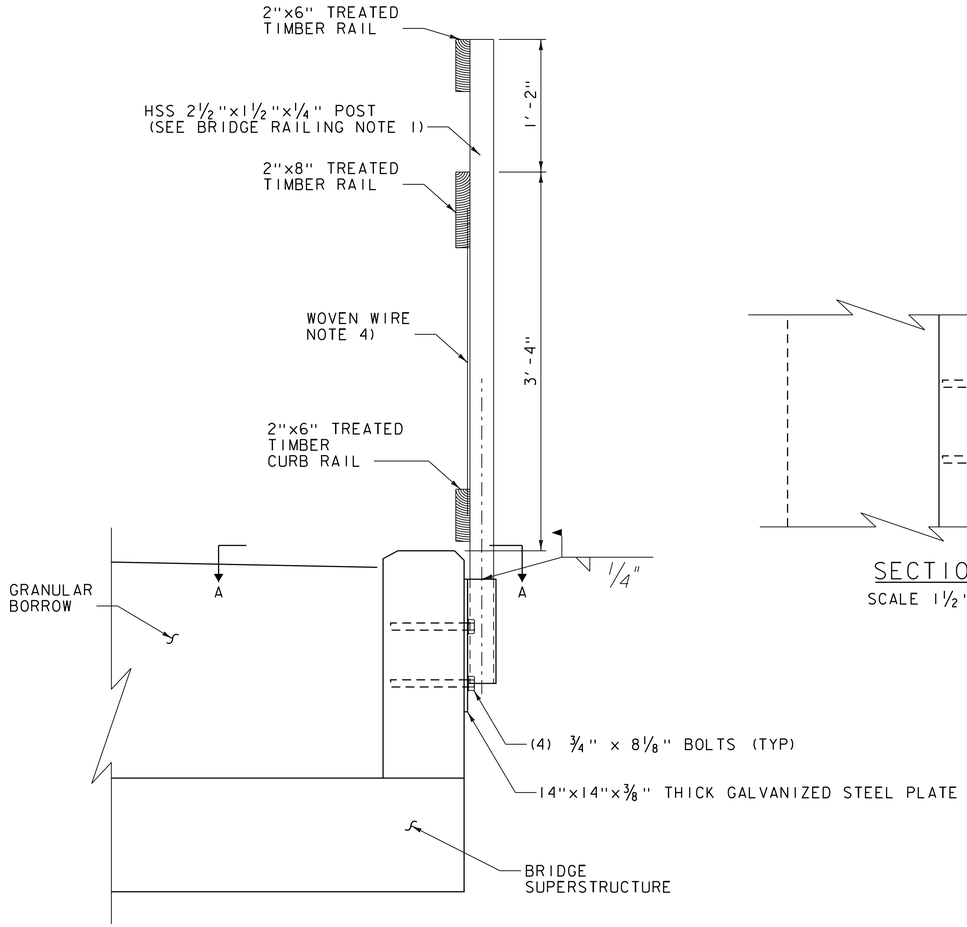
NOTES:

1. BOTH EAST AND WEST ABUTMENTS WILL BE UNIVERSALLY REPOINTED USING GROUT. REPOINTING WILL BE PAID FOR UNDER ITEM 602.30, "REPOINTING MASONRY". CONTRACTOR SHALL ATTEMPT TO MATCH THE COLOR OF THE EXISTING POINTING.
2. ALL VOIDS IN THE ABUTMENTS SHALL BE FILLED WITH GROUT. GROUTING OPERATIONS WILL BE PAID FOR UNDER ITEM 602.40, "REPAIRING STONE MASONRY".
3. PROPOSED WORK SHOWN HAS BEEN ESTIMATED BASED ON LIMITED FIELD INVESTIGATION PERFORMED BY VHB. ACTUAL WORK SHALL BE DETERMINED BY CONTRACTOR AND APPROVED BY RESIDENT ENGINEER.
4. ALL COSTS ASSOCIATED WITH INSTALLING AND DEWATERING THE COFFERDAMS AT BOTH ABUTMENTS AND WINGWALL, IF NECESSARY, WILL BE PAID FOR UNDER ITEM 208.40, "COFFERDAM (BR. 36)".

LEGEND:

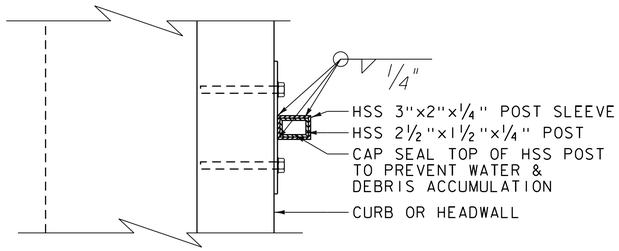
APPROXIMATE LOCATIONS OF VOIDS TO BE FILLED

PROJECT NAME:	SWANTON - ST. JOHNSBURY
PROJECT NUMBER:	STP LVRT(13)
FILE NAME: z20f239_structural_details.dgn	PLOT DATE: 4/30/2021
PROJECT LEADER: E.P. DETRICK	DRAWN BY: N.A. TRUSLOW
DESIGNED BY: J.D. KEENER	CHECKED BY: J.D. KEENER
BR. 36 ABUTMENT ELEVATIONS	SHEET 41 OF 93



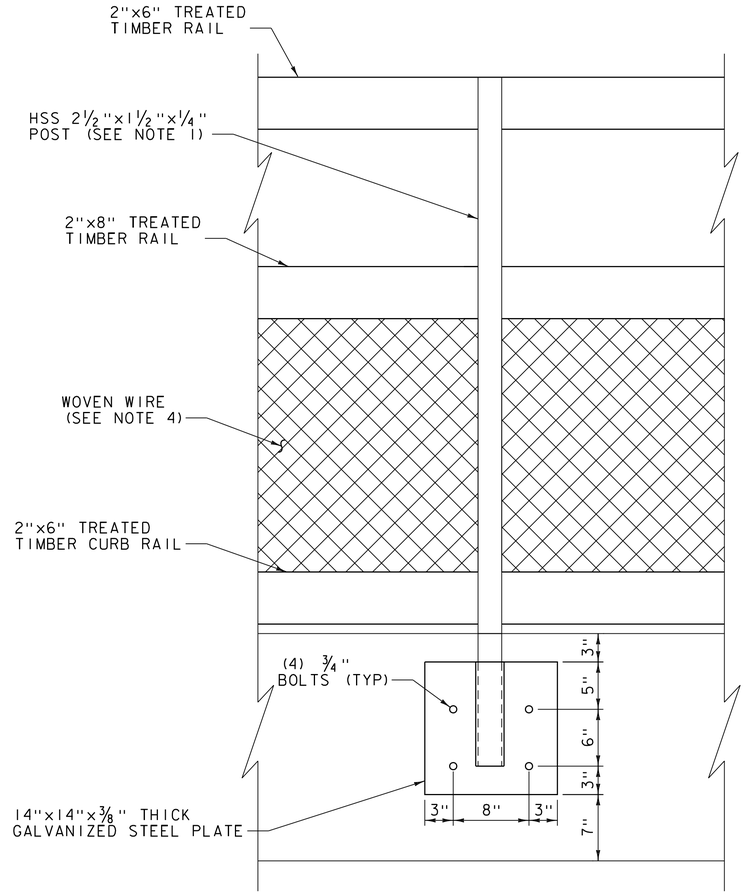
BRIDGE RAILING, TYPE II SECTION

SCALE 1½" = 1'-0"



SECTION A-A

SCALE 1½" = 1'-0"



BRIDGE RAILING, TYPE II ELEVATION

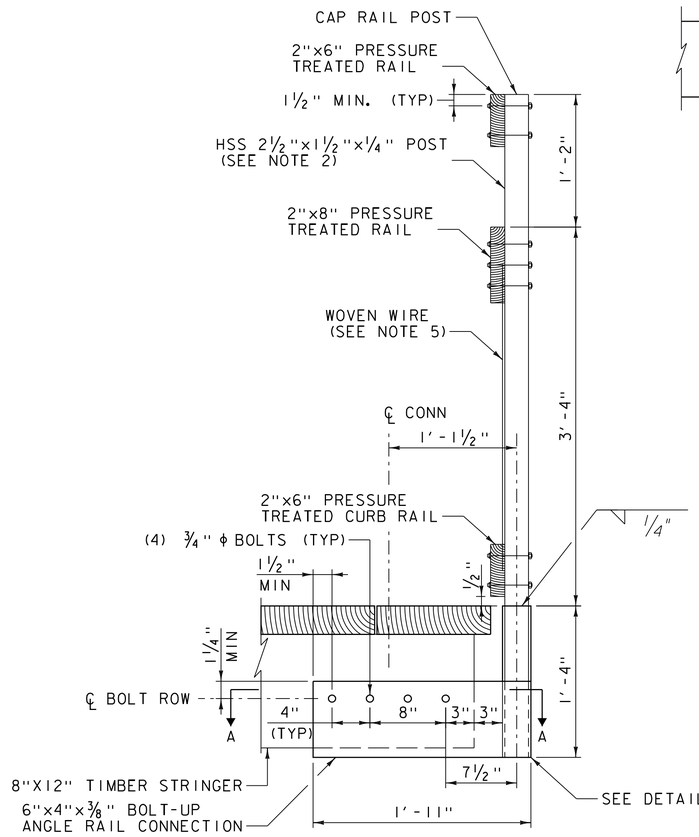
SCALE 1½" = 1'-0"

BRIDGE RAILING NOTES:

1. THIS CONCEPT ALLOWS THE RAILING TO BE ATTACHED TO CONCRETE SLAB STRUCTURES GREATER THAN 8' IN LENGTH. SEE NOTE 5 FOR STRUCTURES LESS THAN 8' IN LENGTH.
2. POST SPACING 6'-0".
3. ALL WELD LOCATIONS SHOULD BE FILLET WELDS OF ¼" THROAT AND AT LEAST 2" IN LENGTH.
4. THE WOVEN WIRE SHALL BE VINYL PVC COATED, 2"x4" 11 GAUGE BLACK.
5. IF THE STRUCTURE SPANS 8'-0" OR LESS, CONTRACTOR MAY USE 6"x4" AND 8"x4" TREATED TIMBER RAILING (SPACED AS SHOWN IN THE RAILING SECTION) WITH 6"x6" TREATED TIMBER POST INSTALLED AT EACH END OF BRIDGE WITH 3'-6" EMBEDMENT INTO THE GROUND INSTEAD OF INSTALLING A METAL POST ON THE STRUCTURE. NUMBER OF METAL POSTS NEEDED SHALL BE FIELD VERIFIED PRIOR TO ORDERING MATERIALS.
6. THE TOP AND BOTTOM RAILS ARE TO BE ATTACHED TO THE POSTS WITH TWO ½" DIA. GALVANIZED CARRIAGE BOLTS WITH ¾" WASHER UNDER THE NUT. THREE ½" DIA. CARRIAGE BOLTS WITH A ¾" WASHER UNDER THE NUT SHALL BE USED FOR CONNECTING THE MIDDLE RAIL TO POSTS. ALL CARRIAGE BOLTS SHALL BE ASTM A307.

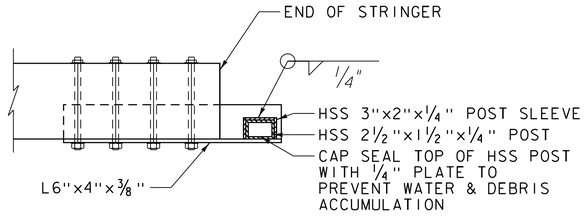
PROJECT NAME:	SWANTON - ST. JOHNSBURY
PROJECT NUMBER:	STP LVRT(13)

FILE NAME: z20f239_railing_details.dgn	PLOT DATE: 4/30/2021
PROJECT LEADER: E.P. DETRICK	DRAWN BY: N.A. TRUSLOW
DESIGNED BY: J.D. KEENER	CHECKED BY: J.D. KEENER
RAILING DETAILS (SHEET 2 OF 2)	SHEET 42 OF 93



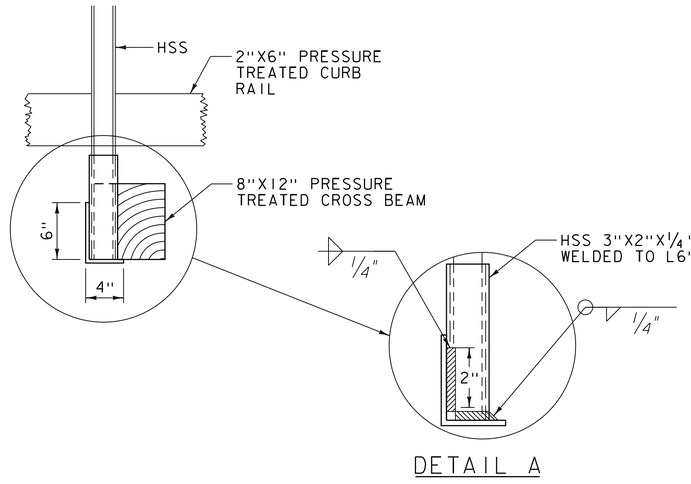
BRIDGE RAILING, TYPE I SECTION

SCALE 1½" = 1'-0"

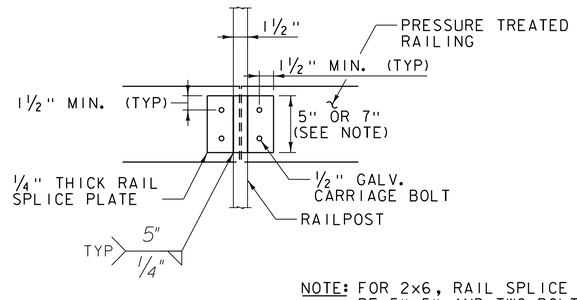


SECTION A-A

SCALE 1½" = 1'-0"

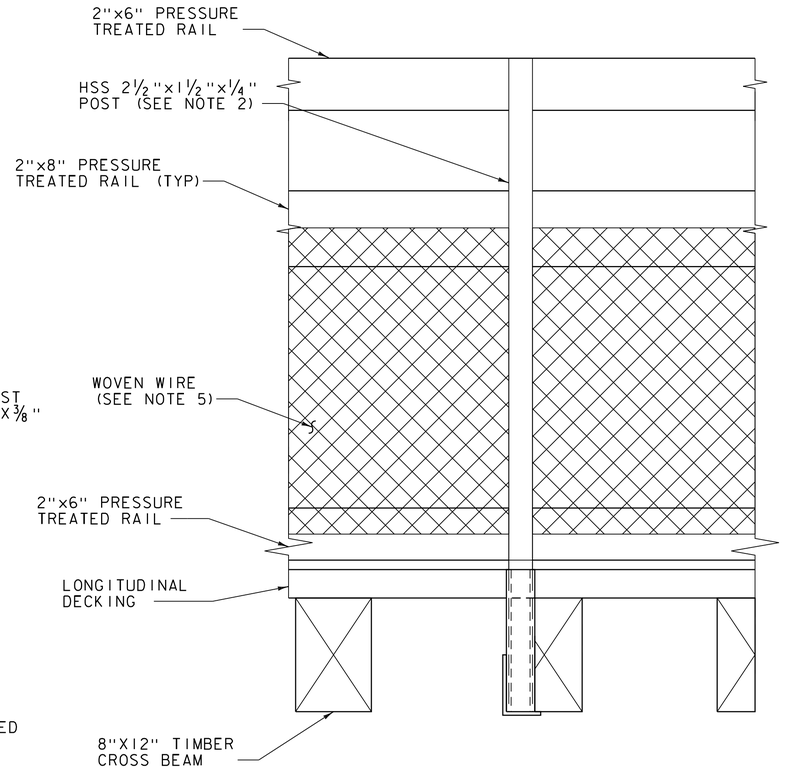


DETAIL A



NOTE: FOR 2x6, RAIL SPLICE PLATE SHALL BE 5"x5" AND TWO BOLTS PER RAIL. FOR 2x8, RAIL SPLICE PLATE SHALL BE 7"x5" WITH THREE BOLTS PER RAIL.

BRIDGE RAILING SPLICE DETAIL



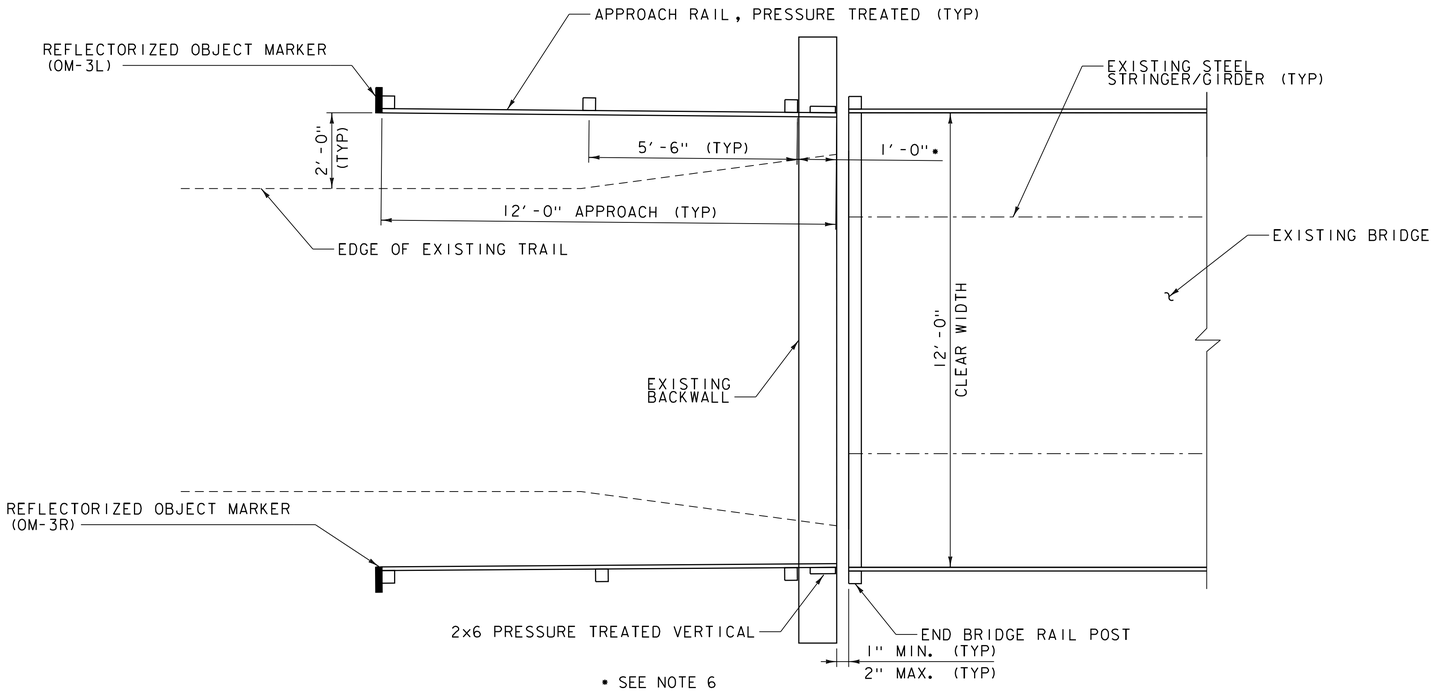
BRIDGE RAILING, TYPE I ELEVATION

SCALE 1½" = 1'-0"

BRIDGE RAILING NOTES:

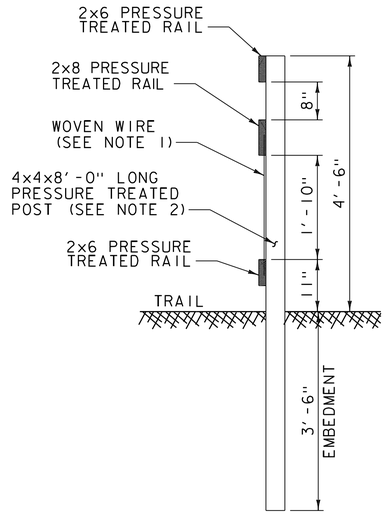
1. THIS CONCEPT ALLOWS THE USE OF 12' TIMBER STRINGERS TO PRODUCE A 12' CLEAR TRAVELED WAY. EXISTING 12' TIE POSTS SHALL BE TIGHT AGAINST THE END OF THE TIE.
2. POST SPACING IS 6'-0".
3. TIMBER STRINGER SPACING IS 2'-0" O.C.
4. ALL WELD LOCATIONS SHOULD BE FILLET WELDS OF ¼" THROAT THICKNESS AND 2" MINIMUM IN LENGTH.
5. THE WOVEN WIRE SHALL BE VINYL COATED, 2"x4" 11 GAUGE BLACK.
6. IF STRUCTURE IS BURIED AND HAS NO TIMBER TIES, TIMBER GUARDRAIL SHALL BE CONSTRUCTED USING APPROACH RAIL DETAILS. SEE TYPICAL APPROACH RAIL SHEET FOR APPROACH RAIL DETAILS.
7. THE TOP AND BOTTOM RAILS ARE TO BE ATTACHED TO THE POSTS WITH TWO ½" DIA. GALVANIZED CARRIAGE BOLTS WITH A ¾" WASHER UNDER THE NUT. THREE ½" DIA. CARRIAGE BOLTS WITH A ¾" WASHER UNDER THE NUT SHALL BE USED FOR CONNECTING THE MIDDLE RAIL TO POSTS. ALL CARRIAGE BOLTS SHALL BE ASTM A307. EXPOSED BOLT THREADS AND NUT SHOULD NOT BE ON INSIDE OF BRIDGE, SMOOTH SIDE FACING TRAIL USERS.
8. ALL COSTS ASSOCIATED WITH FABRICATING AND INSTALLING THE RAILING SHALL BE INCLUDED IN ITEM 900.640, "SPECIAL PROVISION (BRIDGE RAIL, PRESSURE TREATED)".

PROJECT NAME:	SWANTON - ST. JOHNSBURY
PROJECT NUMBER:	STP LVRT(13)
FILE NAME: z20f239_railing_details.dgn	PLOT DATE: 4/30/2021
PROJECT LEADER: E.P. DETRICK	DRAWN BY: K.C. BARRY
DESIGNED BY: VAST	CHECKED BY: M.E. OOMS
RAILING DETAILS (SHEET 1OF 2)	SHEET 43 OF 93



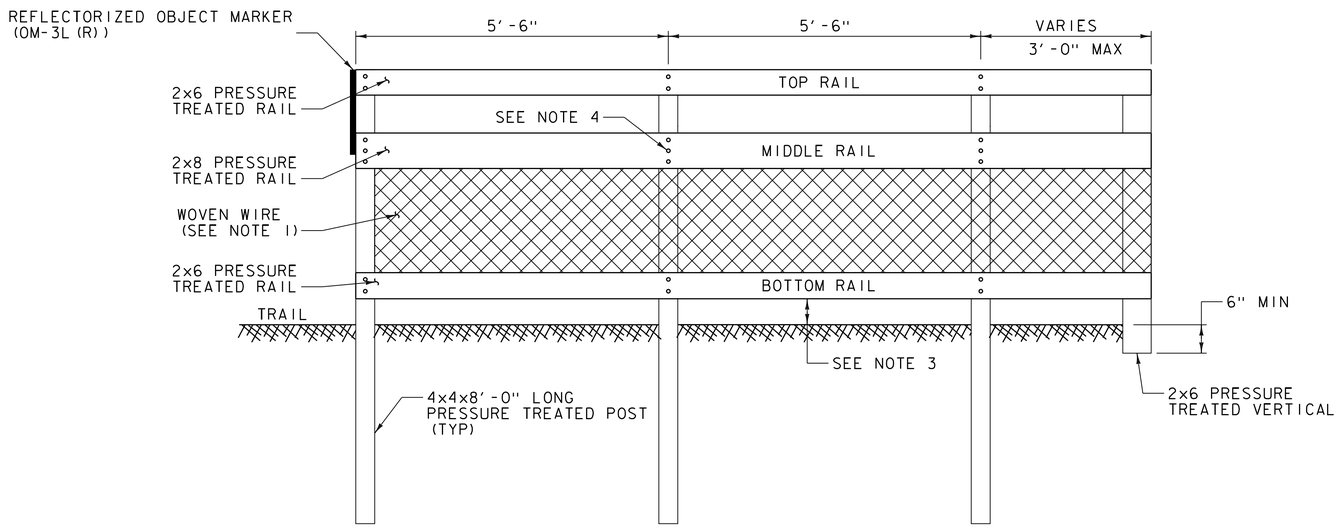
TYPICAL APPROACH RAIL LAYOUT

SCALE ½" = 1'-0"



APPROACH RAIL SECTION

NOT TO SCALE



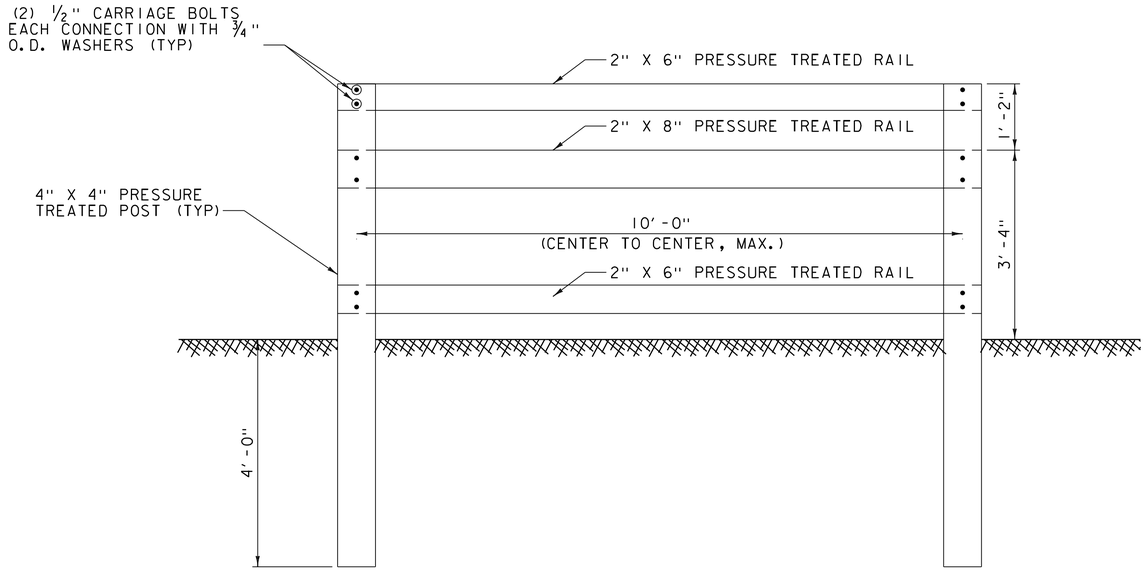
APPROACH RAIL ELEVATION

SCALE ¾" = 1'-0"

NOTES:

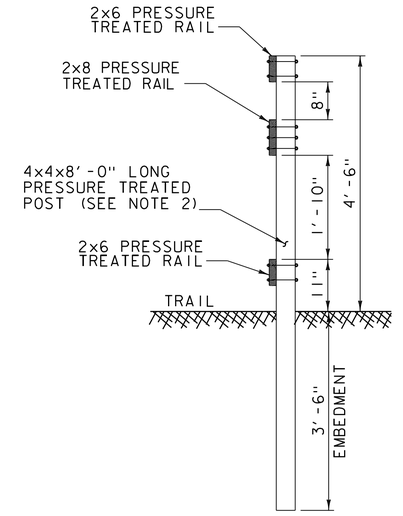
1. THE WOVEN WIRE SHALL BE VINYL COATED, 2"x4" 11 GAUGE, BLACK.
2. WOODEN POSTS AND RAILS SHALL BE PRESSURE TREATED AND MEET THE REQUIREMENTS OF ITEM 522.25, "STRUCTURAL LUMBER AND TIMBER, TREATED".
3. THE TOP, MIDDLE, AND BOTTOM RAIL ARE TO BE SET AT THE SAME SLOPE AS THE TRAIL PROFILE GRADE AT THE EDGE OF THE TRAIL. IF THE OPENING BELOW THE BOTTOM RAIL EXCEEDS SIX (6) INCHES, THEN A FOURTH RAIL, 2x6 PRESSURE TREATED RAIL, SHALL BE INSTALLED UNDER THE BOTTOM RAIL.
4. THE TOP AND BOTTOM RAILS ARE TO BE ATTACHED TO THE POSTS WITH TWO ½" DIA. GALVANIZED CARRIAGE BOLTS WITH A ¾" WASHER UNDER THE NUT. THREE ½" DIA. GALVANIZED CARRIAGE BOLTS WITH A ¾" WASHER UNDER THE NUT SHALL BE USED FOR CONNECTING THE MIDDLE RAIL TO POST. ALL CARRIAGE BOLTS SHALL BE ASTM A307.
5. ALL COSTS ASSOCIATED WITH FABRICATING AND INSTALLING THE APPROACH/GUARD RAIL SHALL BE INCLUDED IN ITEM 900.640, "SPECIAL PROVISION (APPROACH RAIL, PRESSURE TREATED)".
6. PRESSURE TREATED RAIL CAN BE CANTILEVERED A MAX. OF 2'-0" BEYOND THE END OF POST.
7. ALL LUMBER TO BE DRESSED LUMBER. DIMENSIONS SHOWN ARE NOMINAL.

PROJECT NAME:	SWANTON - ST. JOHNSBURY
PROJECT NUMBER:	STP LVRT(13)
FILE NAME: z20f239_approach_rail.dgn	PLOT DATE: 4/30/2021
PROJECT LEADER: E.P. DETRICK	DRAWN BY: B.M. ROBERTS
DESIGNED BY: B.M. ROBERTS	CHECKED BY: B.O. CRONIN
TYPICAL APPROACH RAIL SHEET	SHEET 44 OF 93



TYPICAL GUARDRAIL ELEVATION

SCALE 3/4" = 1'-0"



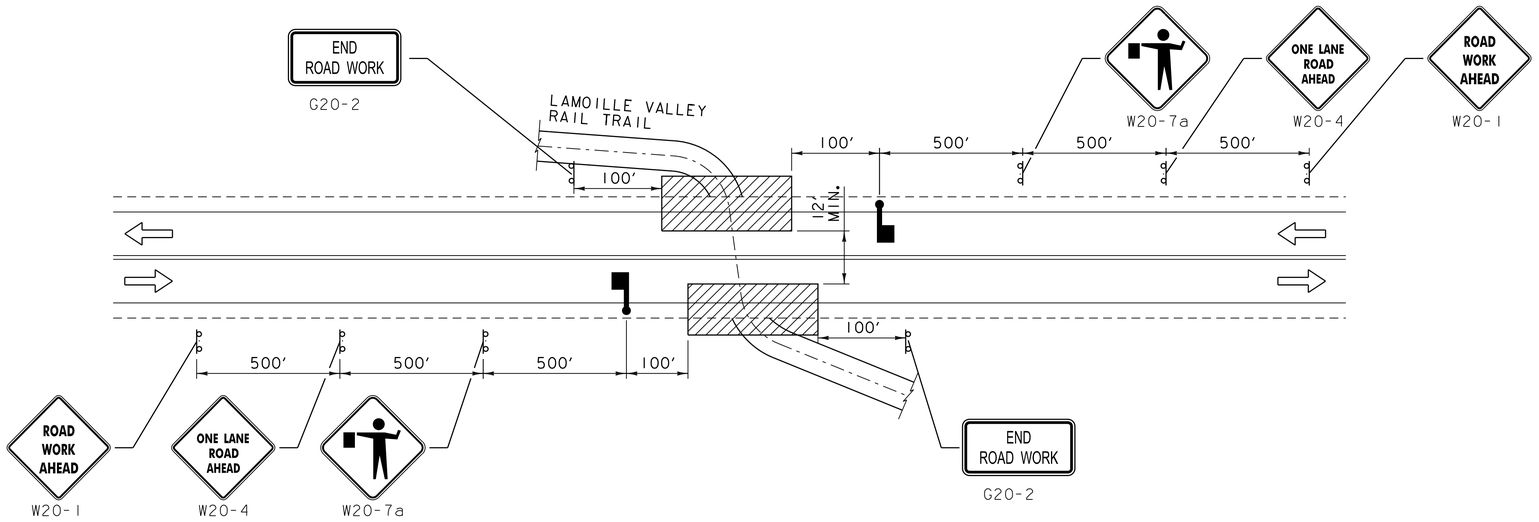
GUARDRAIL SECTION

SCALE 3/4" = 1'-0"

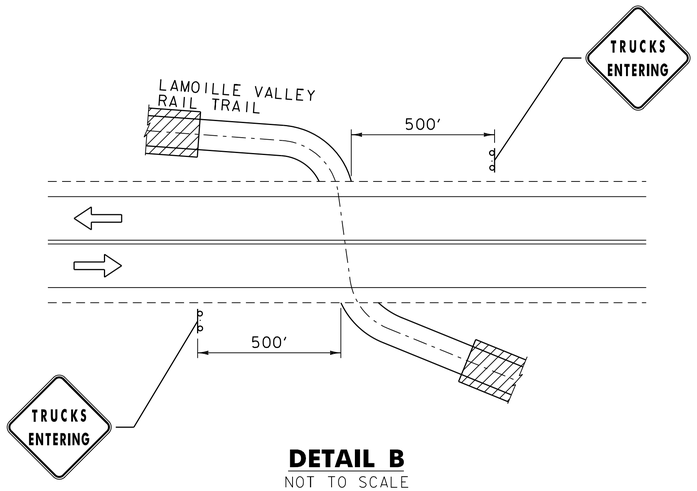
NOTES:

1. WOODEN POSTS AND BOARDS SHALL MEET THE REQUIREMENTS OF SUBSECTION 709.11.
2. THE TOP, MIDDLE, AND BOTTOM RAIL ARE TO BE SET AT THE SAME SLOPE AS THE TRAIL PROFILE GRADE AT THE EDGE OF THE TRAIL. IF THE OPENING BELOW THE BOTTOM RAIL EXCEEDS SIX (6) INCHES, THEN A FOURTH RAIL, 2x6 PRESSURE TREATED RAIL, SHALL BE INSTALLED UNDER THE BOTTOM RAIL.
3. ALL RAILS ARE TO BE ATTACHED TO THE POSTS WITH TWO 1/2" DIA. GALVANIZED CARRIAGE BOLTS WITH A 3/4" WASHER UNDER THE NUT. ALL CARRIAGE BOLTS SHALL BE ASTM A307.
4. ALL COSTS ASSOCIATED WITH FABRICATING AND INSTALLING THE GUARD RAIL SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.640, "SPECIAL PROVISION (GUARD RAIL, PRESSURE TREATED)".

PROJECT NAME:	SWANTON - ST JOHNSBURY
PROJECT NUMBER:	STP LVRT(13)
FILE NAME: z20f239_guardrail.dgn	PLOT DATE: 4/30/2021
PROJECT LEADER: E.P. DETRICK	DRAWN BY: K.C. BARRY
DESIGNED BY: G.L. BAKOS	CHECKED BY: M.E. OOMS
TYPICAL GUARD RAIL SHEET	SHEET 45 OF 93



DETAIL A
NOT TO SCALE



DETAIL B
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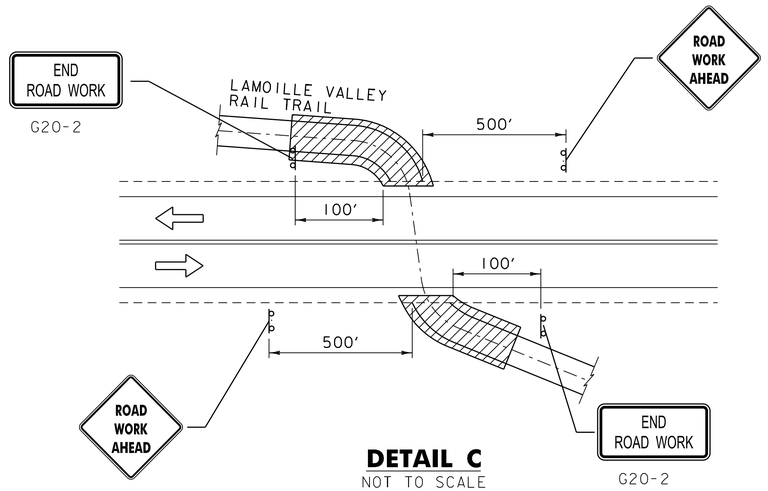


DETAIL C
NOT TO SCALE

TRAFFIC CONTROL PLANS FOR STATE AND TOWN ROADWAYS
NOT TO SCALE

LEGEND
- FLOW OF TRAFFIC
- WORK AREA
- FLAGGER

TRAFFIC CONTROL NOTES:

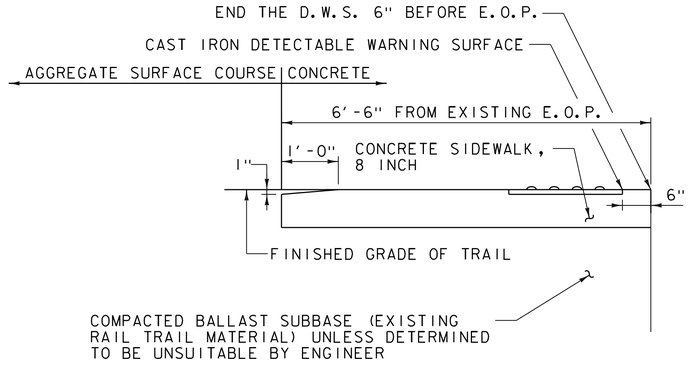
1. THE TRAFFIC CONTROL PLAN SHALL BE DEVELOPED IN ACCORDANCE WITH THE 2018 EDITION OF VTRANS STANDARD SPECIFICATIONS SECTION 641 - TRAFFIC CONTROL AND IN SUBSTANTIAL CONFORMANCE WITH THE 2009 EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND ITS LATEST REVISIONS. THE TRAFFIC CONTROL PLAN SHALL INCLUDE ALL TEMPORARY SIGNS, PAVEMENT MARKINGS, BARRICADES, FLAGGERS, AND OTHER DEVICES REQUIRED TO PROVIDE COMPLETE MANAGEMENT OF TRAFFIC. ANY SIGNS NOT INCLUDED IN THE FHWA STANDARD HIGHWAY SIGNS BOOK (SHSM) SHALL INCLUDE SIGN FACE DIMENSIONS AND LAYOUT.
2. ANY PUBLIC HIGHWAYS, OR DRIVES WITH HIGH TRAFFIC VOLUMES, BETWEEN THE FLAGGER AND THE WORK ZONE WILL REQUIRE AN ADDITIONAL FLAGGER TO MAINTAIN TRAFFIC CONTROL FOR THE PUBLIC HIGHWAY.
3. TRAFFIC CONTROL PLANS SHALL BE ESTABLISHED TO MAINTAIN CONTINUITY OF TRAFFIC THROUGH THE CORRIDOR. INSTALLING, MAINTAINING, ADJUSTING, MODIFYING AND REMOVING THE TRAFFIC CONTROL DEVICES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 641.11, "TRAFFIC CONTROL, ALL INCLUSIVE".
4. SIGNS SHALL BE INSTALLED SO AS NOT TO OBSTRUCT EXISTING SIGNS OR CORNER SIGHT DISTANCE FROM STATE OR TOWN HIGHWAYS OR DRIVES.
5. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE MUTCD AND ITS LATEST REVISIONS AND THE STANDARD SHSM PUBLISHED BY THE FHWA.
6. SOLID SUBSTRATE CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING 'AMERICAN SOCIETY FOR TESTING AND MATERIALS' (ASTM) TYPE VII, VIII OR IX REQUIREMENTS, UNLESS OTHERWISE NOTED.
7. ROLL UP SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING ASTM TYPE VI.
8. SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES, DURING PERIODS OF INACTIVITY OR UPON COMPLETION OF THE WORK. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER. SIGNS SHALL BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER.
9. FIXED SIGNS SHALL BE SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST SEVEN FEET ABOVE THE EDGE OF PAVEMENT. THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST SIX FEET OUTSIDE THE SHOULDER POINT OR FOUR FEET OUTSIDE GUARDRAIL.
10. PORTABLE SIGNS SHALL BE PLACED ON THE EDGE OF ROADWAY AND AT ONE FOOT MINIMUM ABOVE TRAVELED WAY. ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACE SHALL BE ABOVE THE TOP OF THE GUARDRAIL.
11. WHERE SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARDRAIL OR OTHER APPROVED TRAFFIC BARRIERS, ALL SIGN STANDS AND POST INSTALLATIONS SHALL BE "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 AND/OR AASHTO MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) COMPLIANT. NO SIGN POSTS SHALL EXTEND OVER THE TOP OF THE SIGN INSTALLED ON SAID POST(S). WHEN ANCHORS ARE INSTALLED STUB SHALL NOT BE GREATER THAN FOUR INCHES ABOVE EXISTING GROUND.
12. AS WORK PROGRESSES ON THE TRAIL THE COMPLETED PORTION OF THE TRAIL SHOULD BE CLOSED OFF SO PEDESTRIANS, BICYCLIST, ETC. DO NOT HAVE ACCESS UNTIL SUCH TIME AS THE WORK AREA IS OPEN FOR PUBLIC USE. THEREFORE TYPE 3 BARRICADES SHOULD BE PLACED ACROSS THE FULL WIDTH OF THE ENTRANCES TO EACH LOCATION OF THE TRAIL AREA BEING WORKED ON ACCOMPANIED BY A TRAIL CLOSED SIGN
13. WORK THAT TRAVERSES ACROSS TOWN OR STATE HIGHWAYS SHOULD PROVIDE BICYCLE ACCOMODATIONS TO ENSURE THAT OBSTACLES, EQUIPMENT, CONSTRUCTION MATERIALS, TRAFFIC CONTROL DEVICES, ETC. DO NOT ENCROACH INTO THE BICYCLE PATH OF TRAVEL. IT IS IMPORTANT THAT CYCLIST'S ROUTES ARE FREE OF RUTS, SAND AND MUD TO PREVENT CYCLIST'S CRASHES.
14. THE CONTRACTOR SHALL PROVIDE ACCESS THROUGH AND INTO THE WORK ZONE FOR EMERGENCY VEHICLES OR COORDINATE EMERGENCY ROUTES PRIOR TO THE START OF CONSTRUCTION.
15. NO CONSTRUCTION SIGNS SHALL BE INSTALLED AS TO INTERFERE OR OBSTRUCT THE VIEW OF EXISTING TRAFFIC CONTROL DEVICES, STOPPING SIGHT DISTANCE, AND CORNER SIGHT DISTANCE FROM DRIVES AND TOWN HIGHWAYS. EXISTING SIGNS WHICH CONFLICT WITH TEMPORARY TRAFFIC CONTROL SHALL BE COMPLETELY COVERED OR REMOVED.
16. IF USED, SIGN COVERING SHALL NOT DAMAGE THE RETRO-REFLECTIVITY OF THE SIGN FACE. ALSO, THE SIGN COVER SHALL NOT DETERIORATE FOR THE DURATION THAT THE SIGN IS COVERED.

vhb

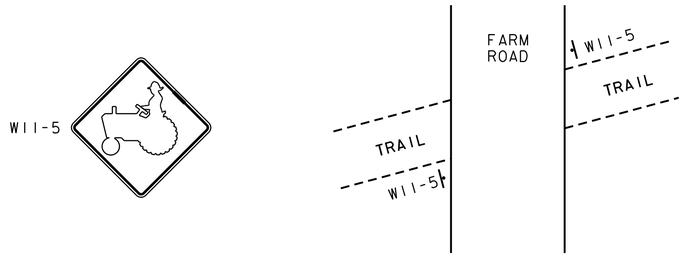
PROJECT NAME:	SWANTON - ST. JOHNSBURY
PROJECT NUMBER:	STP LVRT(13)
FILE NAME: z20f239_tcp.dgn	PLOT DATE: 4/30/2021
PROJECT LEADER: E.P. DETRICK	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: E.P. DETRICK
TRAFFIC CONTROL PLAN SHEET	SHEET 46 OF 93

NOTES:

1. Ø SHALL BE 75° TO 90°, CROSSINGS WHICH CANNOT MEET THE MINIMUM 75° ANGLE SHALL BE RECONFIGURED TO IMPROVE THE CROSSING ANGLE TO THE EXTENT SITE CONDITIONS AND ROW ALLOW.
2. CONCRETE RAMP WIDTH TO MATCH APPROACHING TRAIL WIDTH AT INTERSECTION WITH ROADWAY.
3. SEE TRAFFIC SIGN SUMMARY SHEETS AND ETIQUETTE SIGN SHEET FOR ADDITIONAL INFORMATION.
4. SIGNS SHALL BE PLACED SUCH THAT THE EDGE OF THE SIGN IS NO CLOSER THAN 3' AND NO FURTHER THAN 5' FROM THE EDGE OF TRAIL AND 5' FROM THE TRAIL SURFACE TO THE BOTTOM OF THE SIGN.
5. SIGNS SHALL BE MOUNTED ON 2" SQUARE STEEL POSTS. THE POSTS WILL BE PAID UNDER ITEM 675.341 "SQUARE TUBE SIGN POST AND ANCHOR".
6. W11-5 SIGN TO BE LOCATED AT ALL FARM AND FARM ROAD CROSSINGS.
7. SEE VTRANS TEI 18-200 AND STANDARD DRAWING E-121 FOR SIGN LOCATIONS AND SPACING REQUIRMENTS.

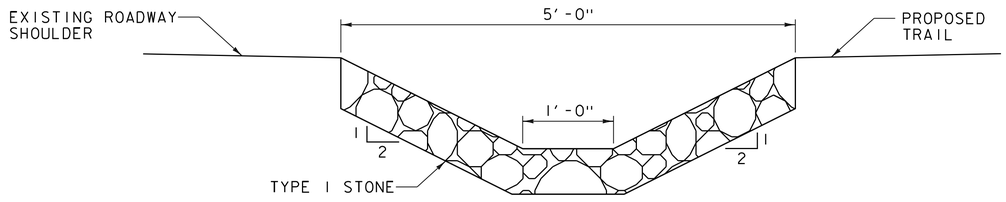


SECTION A-A
NOT TO SCALE

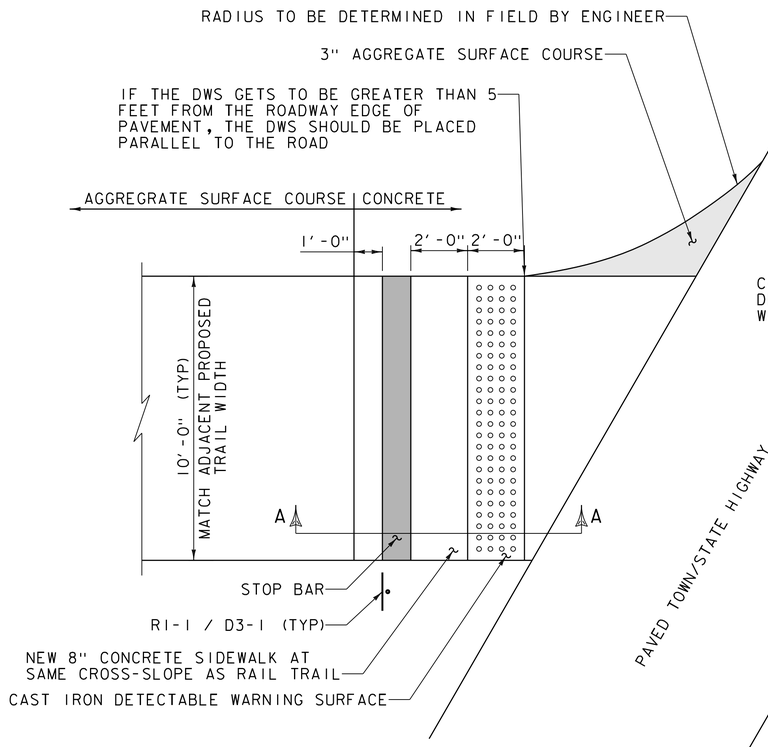


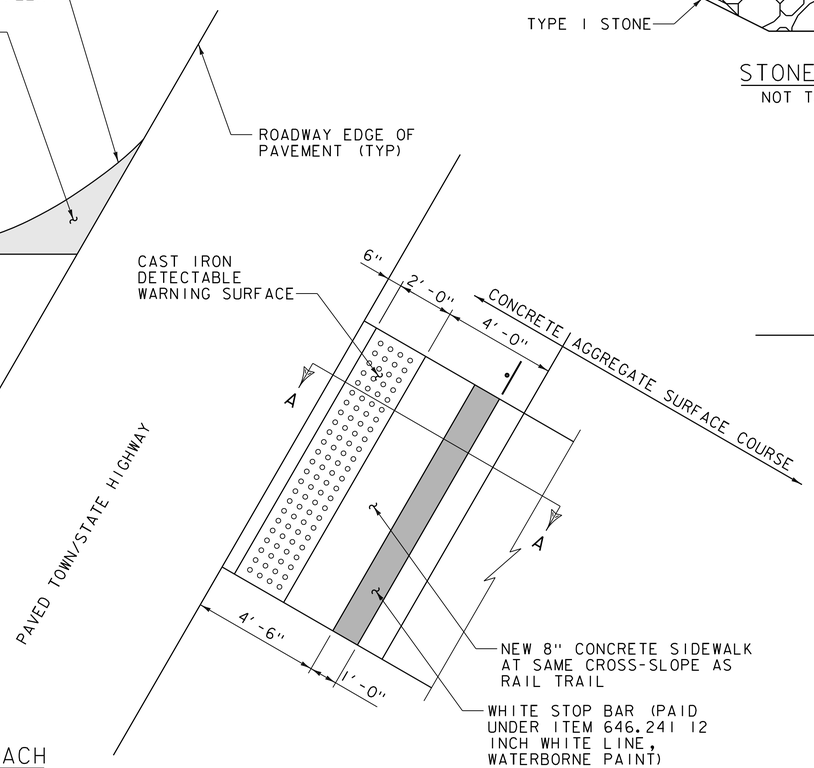
STANDARD FARM CROSSING SIGNS

ACCESSIBLE ROAD CROSSING APPROACH

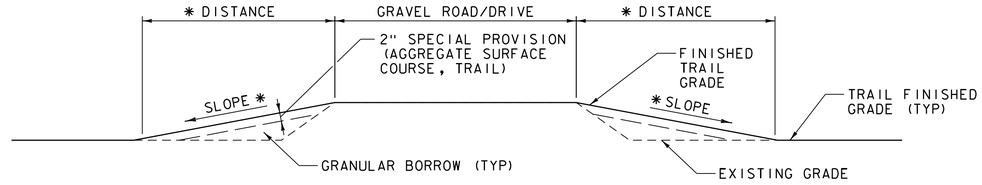


STONE SWALE
NOT TO SCALE





ACCESSIBLE ROAD CROSSING APPROACH
NOT TO SCALE



* - SEE NOTE 1 BELOW

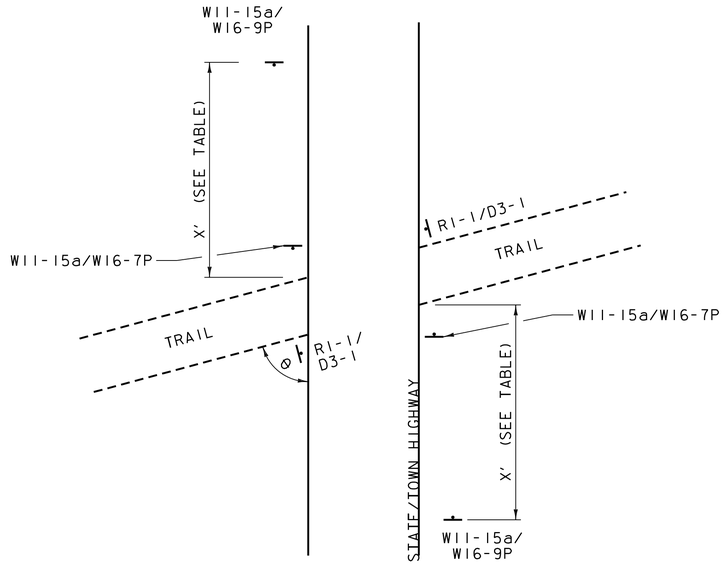
TYPICAL GRAVEL ROAD/DRIVE CROSSING SECTION
NOT TO SCALE

NOTE:

1. GRAVEL ROADWAY CROSSINGS SHALL HAVE CONCRETE RAMPS AS DEPICTED IN THE ACCESSIBLE GRAVEL ROAD CROSSING DETAIL ON CROSSING DETAILS SHEET 2.

PROJECT NAME:	SWANTON - ST JOHNSBURY
PROJECT NUMBER:	STP LVRT(13)
FILE NAME: z20f239_crossings.dgn	PLOT DATE: 4/30/2021
PROJECT LEADER: E.P. DETRICK	DRAWN BY: D.A. GINGRAS
DESIGNED BY: D.A. GINGRAS	CHECKED BY: B.M. ROBERTS
CROSSING DETAILS SHEET (1 OF 4)	SHEET 47 OF 93

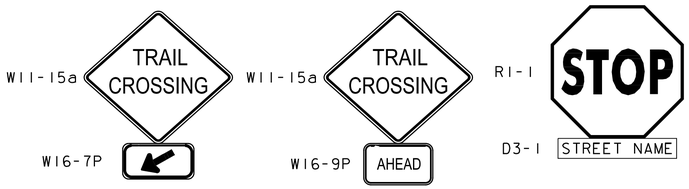
CROSSING LOCATION	ROADWAY	SIGN	DISTANCE FROM TRAIL ALONG ROADWAY
37	U HARRINGTON HILL ROAD TH 45	W11-15a	125'
		W16-9P	
		W11-15a	5'
		W16-7P	
38	BRICKETTS CROSSING TH 46	W11-15a	125'
		W16-9P	
		W11-15a	5'
		W16-7P	
40	PRIVATE DRIVEWAY	R1-1	5'
46	SAWMILL ROAD TH 28	W11-15a	250'
		W16-9P	
		W11-15a	5'
		W16-7P	
50	KEENE ROAD TH 26	W11-15a	250'
		W16-9P	
		W11-15a	5'
		W16-7P	
BRIDGE 31	BAYLEY HAZEN ROAD TH 12	W11-15a	125'
		W16-9P	
		W11-15a	5'
		W16-7P	
55	WARD HILL ROAD TH 32	W11-15a	125'
		W16-9P	
		W11-15a	5'
		W16-7P	
59	BELFRREY ROAD TH 1	W11-15a	125'
		W16-9P	
		W11-15a	5'
		W16-7P	
63	PRIVATE DRIVEWAY	R1-1	5'
64	PRIVATE DRIVEWAY	R1-1	5'
66	TOUSANT HILL ROAD TH 61	W11-15a	250'
		W16-9P	
		W11-15a	5'
		W16-7P	
69	MAIN STREET TH 4	W11-15a	125'
		W16-9P	
		W11-15a	5'
		W16-7P	
N/A	PRIVATE DRIVEWAY	R1-1	5'
70	E MAIN STREET TH 5	W11-15a	250'
		W16-9P	
		W11-15a	5'
		W16-7P	
N/A	PRIVATE DRIVEWAY	R1-1	5'
74	ARSENE AVENUE (PRIVATE ROADWAY)	W11-15a	250'
		W16-9P	
		W11-15a	5'
		W16-7P	
75	MICHAUD FARM ROAD TH 62	W11-15a	250'
		W16-9P	
		W11-15a	5'
		W16-7P	
80	E CHURCH ST TH 2	W11-15a	125'
		W16-9P	
		W11-15a	5'
		W16-7P	
82	STEVEN'S LANE TH 61	W11-15a	250'
		W16-9P	
		W11-15a	5'
		W16-7P	
83	BRICKHOUSE ROAD TH 28	W11-15a	250'
		W16-9P	
		W11-15a	5'
		W16-7P	
86	PUMPKIN LANE TH 31	W11-15a	125'
		W16-9P	
		W11-15a	5'
		W16-7P	
89	BAILEY FARM ROAD TH 60	W11-15a	125'
		W16-9P	
		W11-15a	5'
		W16-7P	
90	MAPLE STREET TH 3	W11-15a	125'
		W16-9P	
		W11-15a	5'
		W16-7P	



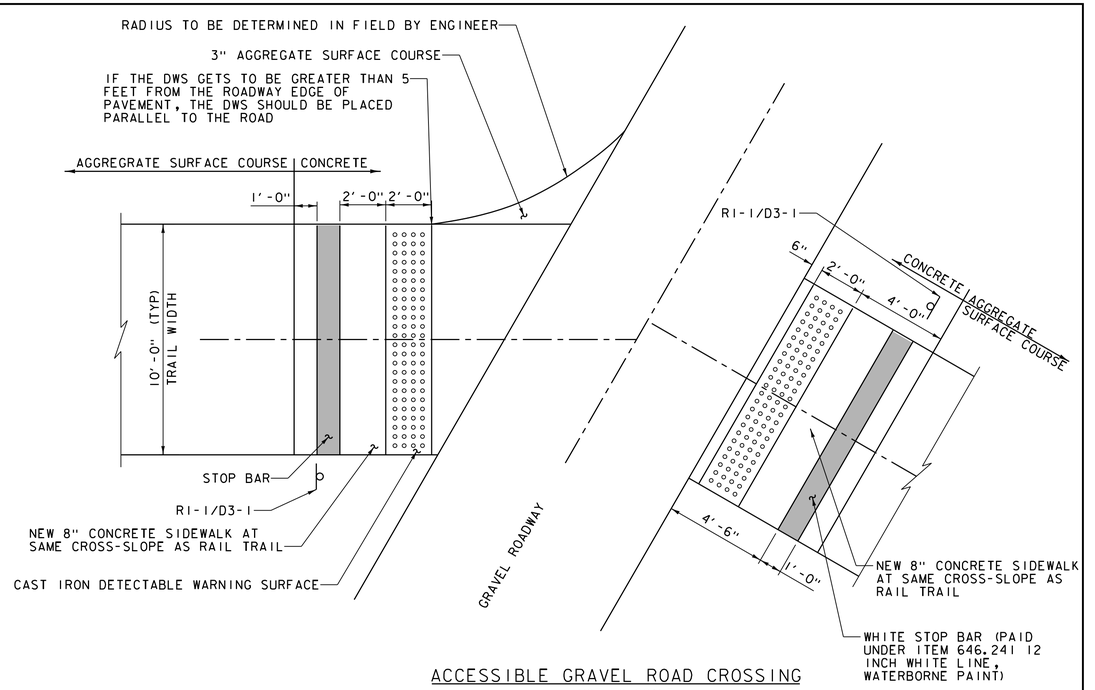
TYPICAL STATE AND TOWN HIGHWAY CROSSING SIGN LAYOUT

DIST. (FT) X'	ROAD SPEED LIMIT MPH
*	<35
125'	40
175'	45
250'	50

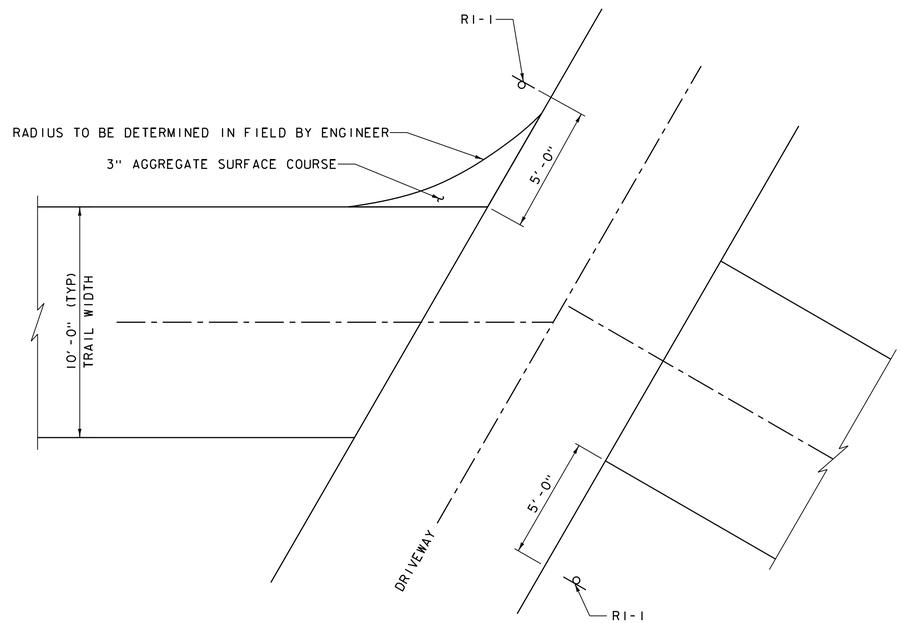
* SEE NOTE 3



STANDARD ROAD CROSSING SIGNS



ACCESSIBLE GRAVEL ROAD CROSSING
NOT TO SCALE



PRIVATE DRIVE CROSSING
NOT TO SCALE

NOTES:

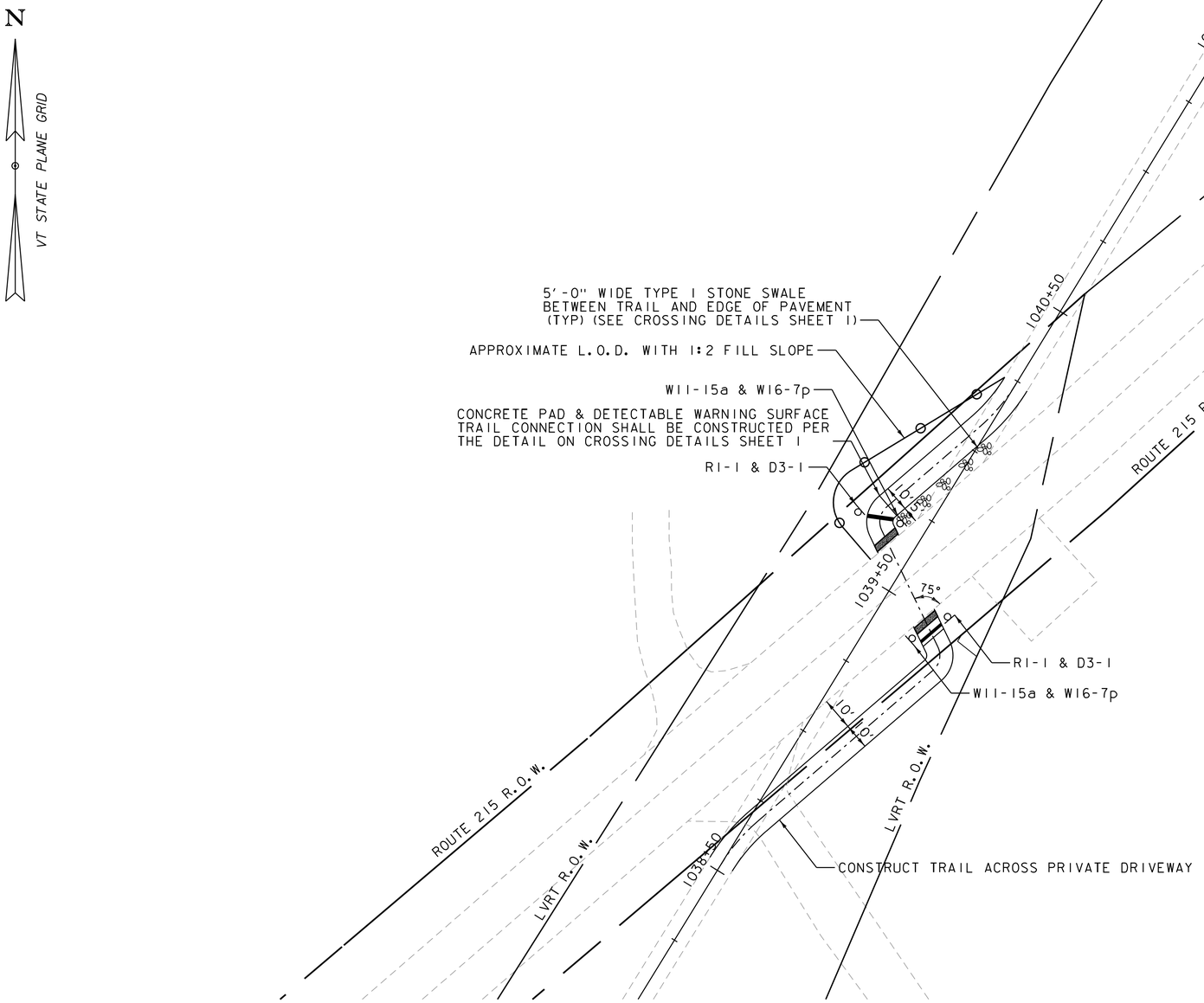
1. GRANULAR BORROW SHALL BE ADDED TO FEATHER TRAIL GRADE SUCH THAT FINAL GRADE ALONG TRAIL IS 5% OR LESS.
2. GRANULAR BORROW SHALL BE TOPPED WITH 2" ITEM 900.608 "SPECIAL PROVISION (AGGREGATE SURFACE COURSE, TRAIL)" TO ACHIEVE FINAL GRADE ELEVATIONS AS SHOWN IN TYPICAL TRAIL CROSS SECTIONS .
3. THE W11-15a AND W16-9p SIGN ASSEMBLILIES ARE NOT REQUIRED ON ROADWAYS WITH SPEEDS OF 35 MPH OR LOWER.

vhb

PROJECT NAME: SWANTON - ST. JOHNSBURY
PROJECT NUMBER: STP LVRT(13)

FILE NAME: z20f239_crossings.dgn
PROJECT LEADER: E.P. DETRICK
DESIGNED BY: R.M. OBRIEN
CROSSING DETAILS SHEET (2 OF 4)

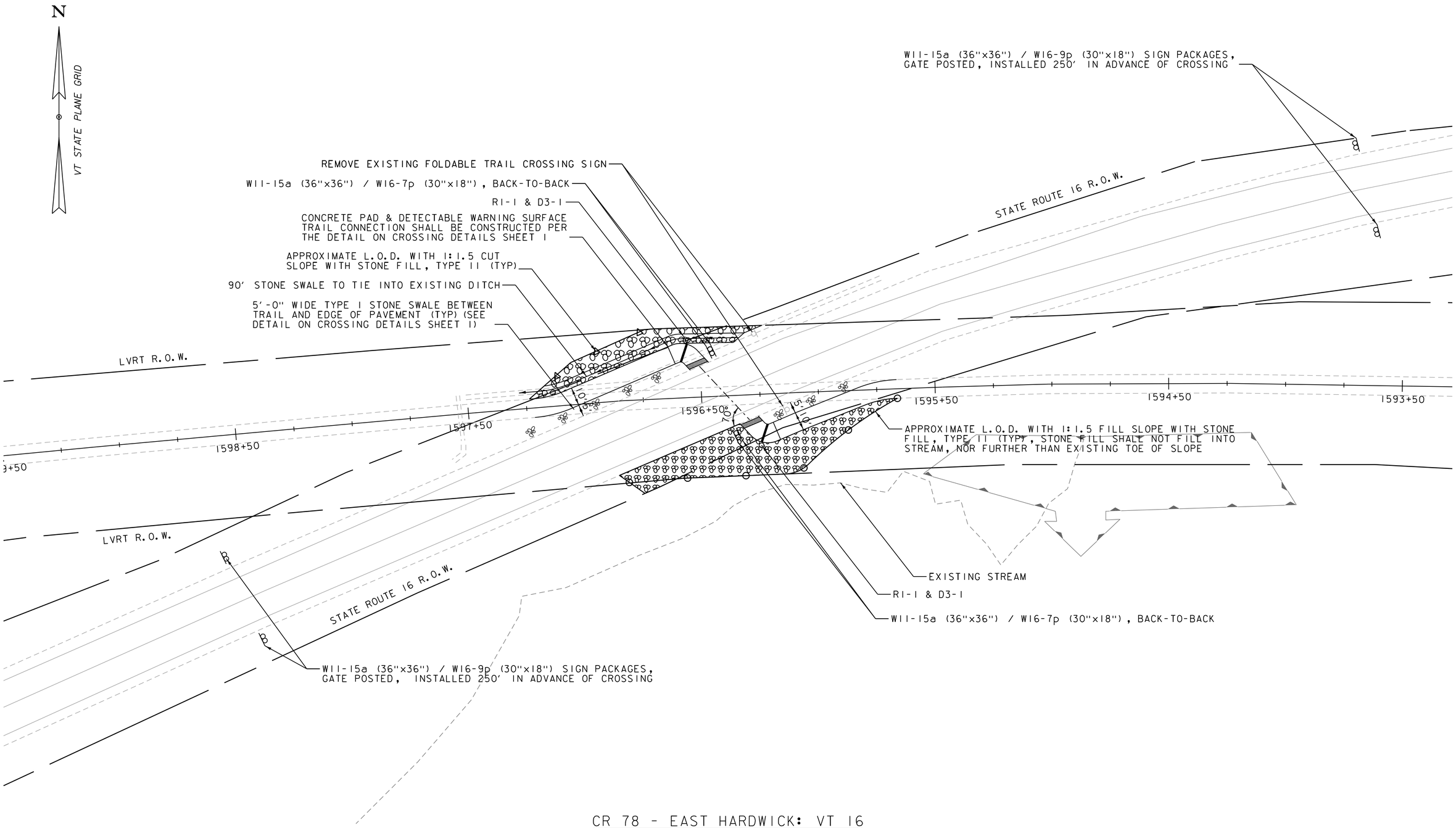
PLOT DATE: 4/30/2021
DRAWN BY: R.M. OBRIEN
CHECKED BY: E.P. DETRICK
SHEET 48 OF 93



CR 39 - WALDEN: VT 215

NOT TO SCALE

PROJECT NAME:	SWANTON - ST. JOHNSBURY
PROJECT NUMBER:	STP LVRT(13)
FILE NAME: z20f239_bdr_CR39.dgn	PLOT DATE: 4/30/2021
PROJECT LEADER: E.P. DETRICK	DRAWN BY: D.A. GINGRAS
DESIGNED BY: D.A. GINGRAS	CHECKED BY: E.P. DETRICK
CROSSING DETAILS (SHEET 3 OF 4)	SHEET 49 OF 93



CR 78 - EAST HARDWICK: VT 16

NOT TO SCALE

PROJECT NAME:	SWANTON - ST. JOHNSBURY
PROJECT NUMBER:	STP LVRT(13)
FILE NAME: z20f239_bdr_CR78.dgn	PLOT DATE: 4/30/2021
PROJECT LEADER: E.P. DETRICK	DRAWN BY: D.A. GINGRAS
DESIGNED BY: D.A. GINGRAS	CHECKED BY: E.P. DETRICK
CROSSING DETAILS (SHEET 4 OF 4)	SHEET 50 OF 93

VAOT RURAL AREA MIX

LBS/AC						
WEIGHT	BROADCAST	HYDROSEED	NAME	LATIN NAME	GERM	PURITY
37.5%	22.5	45	CREEPING RED FESCUE	FESTUCA RUBRA VAR. RUBRA	85%	98%
37.5%	22.5	45	TALL FESCUE	FESTUCA ARUNDINACEA	90%	95%
5.0%	3	6	RED TOP	AGROSTIS GIGANTEA	90%	95%
15.0%	9	18	WHITE FIELD CLOVER	TRIFOLIUM REPENS	85%	98%
5.0%	3	6	ANNUAL RYE GRASS	LOLIUM MULTIFLORUM	85%	95%
100%	60	120				

WET AREA SEED MIX

SEED	% WEIGHT
VIRGINIA WILD RYE GRASS	20
FOX SEDGE	10
AMERICAN MANNAGRASS	20
GIANT BUR-REED	10
COMMON THREE-SQUARE	20
SOFT-STEM BULRUSH	10
CANADA RUSH	10
RATE OF APPLICATION: 10# PER ACRE (UP TO 15# PER ACRE IF HYDROSEEDED)	

CONSTRUCTION GUIDANCE

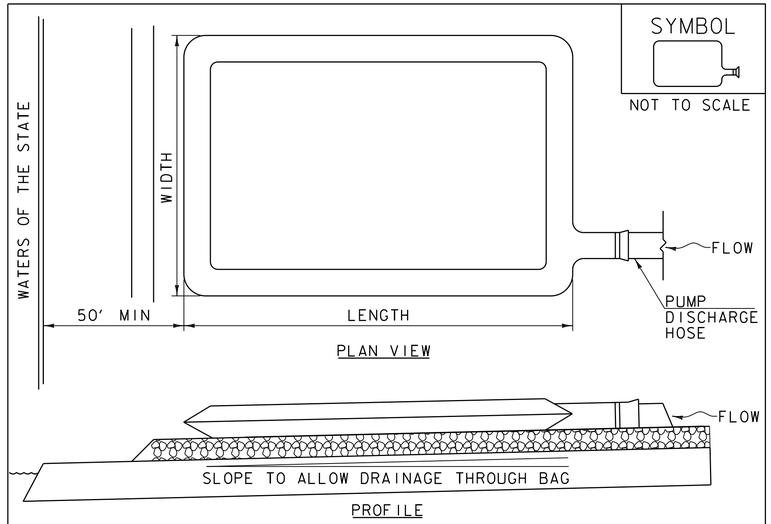
1. SEED MIX: THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER ON WHICH SEED MIX TO USE.
2. SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
3. ALL SEED MIXTURES: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
4. FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER.
5. HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.
6. STRAW MULCH: TO BE PLACED ON EARTH SLOPES IN WETLANDS AND WETLAND BUFFERS AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.
7. HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED PROPOSED FOR USE WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED.
8. TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES

TURF ESTABLISHMENT

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 651 FOR SEED (PAY ITEM 651.15)

REVISIONS		
JANUARY 12, 2015	WHF	



CONSTRUCTION SPECIFICATIONS

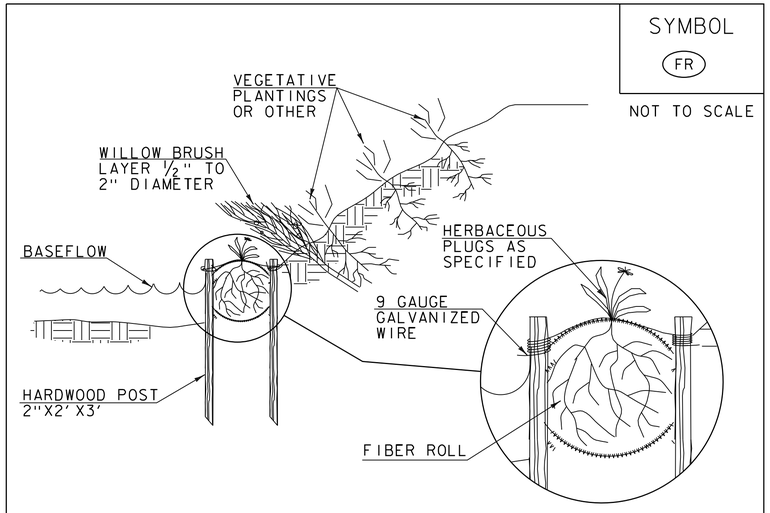
1. THE PRIMARY PURPOSE OF FILTER BAG IS TO RETAIN SILT, SAND, AND FINES DURING DEWATERING OPERATIONS.
2. FILTER BAGS SHALL BE INSTALLED ON A VEGETATED SLOPE GRADED TO ALLOW INCOMING WATER TO FLOW THROUGH THE BAG.
3. FILTER BAGS MAY ALSO BE PLACED ON COARSE AGGREGATE, STONE, OR HAYBALES TO INCREASE FILTRATION EFFICIENCY.
4. FILTER BAGS SHALL BE LOCATED A MINIMUM OF 50' FROM WATERS OF THE STATE UNLESS OTHERWISE APPROVED BY THE ENGINEER.
5. THE NECK OF THE FILTER BAG SHALL BE STRAPPED TIGHTLY TO THE DISCHARGE HOSE.
6. A FILTER BAG IS FULL WHEN IT NO LONGER CAN EFFICIENTLY FILTER SEDIMENT OR ALLOW WATER TO PASS AT A REASONABLE RATE.
7. FILTER BAG SHALL BE DISPOSED OF AS APPROVED IN THE EPSC PLAN OR AS DIRECTED BY THE ENGINEER.

FILTER BAG

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR FILTER BAG (PAY ITEM 653.45) AND AS SPECIFIED IN THE CONTRACT.

REVISIONS		
MARCH 24, 2008	WHF	
JANUARY 13, 2009	WHF	



CONSTRUCTION SPECIFICATIONS

1. EXCAVATE A SHALLOW TRENCH SLIGHTLY BELOW BASEFLOW OR A 4" TRENCH ON SLOPE CONTOURS
2. PLACE THE ROLL IN THE TRENCH AND ANCHOR WITH 2"X2" POSTS PLACED ON BOTH SIDES FO THE ROLL AND SPACED LATERALLY ON 2' TO 4' CENTERS. TRIM THE TOP OF THE POSTS EVEN WITH THE EDGE OF THE ROLL, IF NECESSARY.
3. NOTCH THE POSTS AND TIE TOGETHER, ACROSS THE ROLL, WITH 9 GAUGE GALVANIZED WIRE OR 1/8" DIAMETER BRAIDED NYLON ROPE.
4. PLACE SOIL EXCAVATED FROM THE TRENCH BEHIND THE ROLL AND HAND TAMP. PLANTWITH SUITABLE HERBACEOUS OR WOODY VEGETATION AS SPECIFIED ELSEWHERE IN THE CONTRACT DOCUMENTS. VEGETATION SHALL BE PLACED IMMEDIATELY ADJACENT TO THE ROLL TO PROMOTE ROOT GROWTH INTO THE FIBER. HERBACEOUS VEGETATION, IF SPECIFIED, SHALL BE PLANTED INTO THE FIBER ROLL.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

FIBER ROLL (EROSION LOG)

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR EROSION LOG (PAY ITEM 653.60)

REVISIONS		
MARCH 21, 2008	WHF	
JANUARY 13, 2009	WHF	

vhb

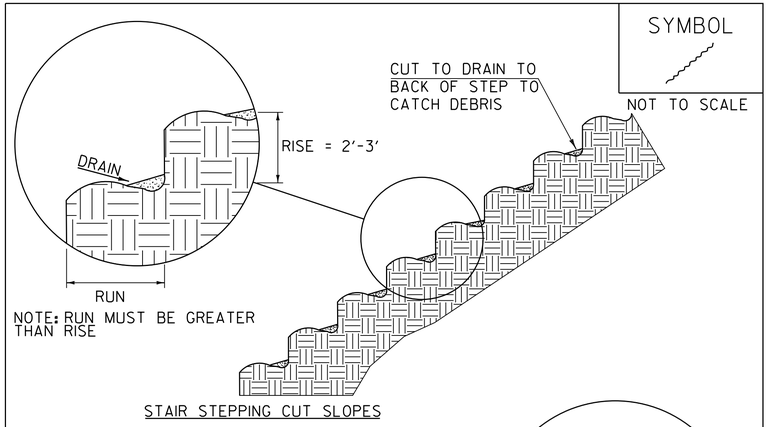
PROJECT NAME: SWANTON - ST JOHNSBURY
PROJECT NUMBER: STP LVRT(13)

FILE NAME: z20f239_EPSC_det.dgn
PROJECT LEADER: E.P. DETRICK
DESIGNED BY: VTRANS
EPSC DETAIL SHEET (1 OF 2)

PLOT DATE: 4/30/2021
DRAWN BY: VTRANS
CHECKED BY: B.M. ROBERTS
SHEET 51 OF 93

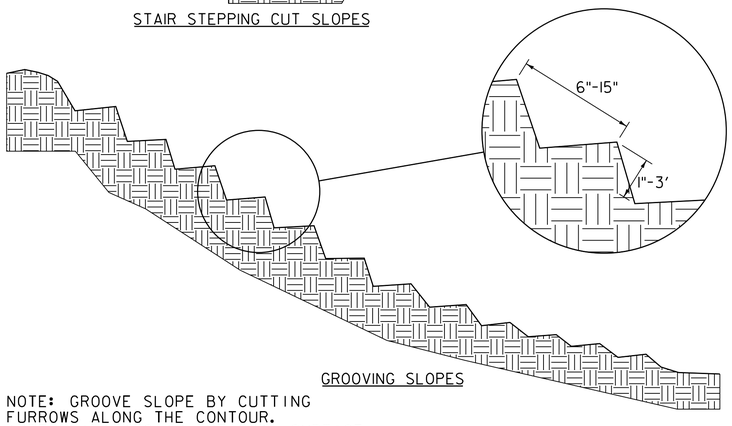
SYMBOL

NOT TO SCALE



NOTE: RUN MUST BE GREATER THAN RISE

STAIR STEPPING CUT SLOPES



GROOVING SLOPES

NOTE: GROOVE SLOPE BY CUTTING FURROWS ALONG THE CONTOUR. IRREGULARITIES IN THE SOIL SURFACE CATCH RAINWATER AND RETAIN LIME, FERTILIZER AND SEED.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SURFACE ROUGHENING

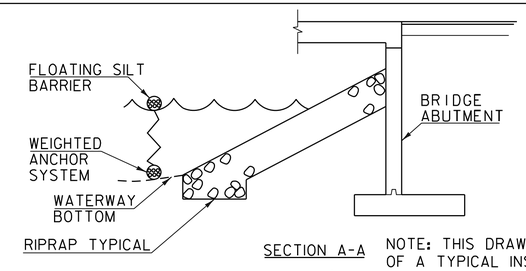
NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT

REVISIONS	
APRIL 1, 2008	WHF
JANUARY 13, 2009	WHF

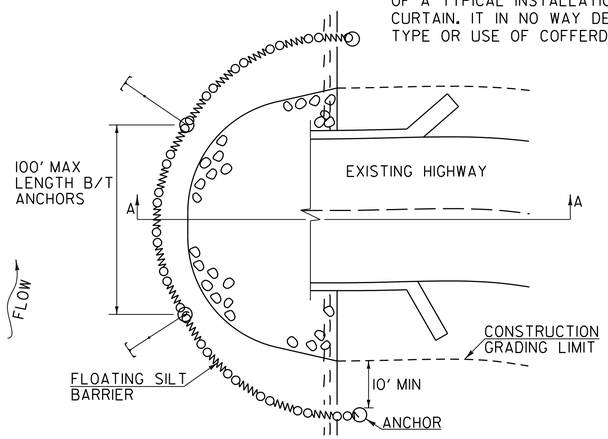
SYMBOL

NOT TO SCALE



SECTION A-A

NOTE: THIS DRAWING IS A DEPICTION OF A TYPICAL INSTALLATION OF FILTER CURTAIN. IT IN NO WAY DEFINES THE TYPE OR USE OF COFFERDAM IF USED.



CONSTRUCTION SPECIFICATIONS

1. FILTER CURTAIN SHALL NOT BE PLACED ACROSS A FLOWING WATERWAY, OR IN A WATERWAY WITH STREAM VELOCITIES GREATER THAN 1.5 FEET/SECOND.
2. MAXIMUM 100' LENGTH BETWEEN ANCHORS.
3. LAST SECTION SHALL TERMINATE A MINIMUM OF 10' BEYOND LIMIT OF DISTURBANCE.
4. THE WEIGHTED ANCHOR SYSTEM SHALL BE A TYPE WHICH ALLOWS THE CURTAIN TO CONFORM TO THE BOTTOM OF THE WATERWAY.
5. THE CURTAIN SHALL BE REMOVED BY SLOWLY PULLING TOWARD THE SHORE MINIMIZING THE ESCAPE OF SEDIMENTS INTO WATERWAY.

FILTER CURTAIN

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 FOR GEOTEXTILE FOR FILTER CURTAIN (PAY ITEM 649.61).

REVISIONS	
APRIL 1, 2008	WHF
JANUARY 13, 2009	WHF
SEPTEMBER 4, 2009	WHF

PROJECT NAME:	SWANTON - ST JOHNSBURY
PROJECT NUMBER:	STP LVRT(13)

FILE NAME: z20f239_EPSC_det.dgn	PLOT DATE: 4/30/2021
PROJECT LEADER: E.P. DETRICK	DRAWN BY: VTRANS
DESIGNED BY: VTRANS	CHECKED BY: B.M. ROBERTS
EPSC DETAIL SHEET (2 OF 2)	SHEET 52 OF 93

EPSC PLAN NARRATIVE

1. PROJECT DESCRIPTION

THE OVERALL PROJECT INVOLVES REHABILITATION OF THE LAMOILLE VALLEY RAIL TRAIL. THE SPECIFIC WORK INCLUDED IN CONTRACT STP LVRT(13) BEGINS AT THE INTERSECTION OF CHANNEL DRIVE IN WEST DANVILLE AND EXTENDS WESTERLY 17.9 MILES TO MAPLE STREET IN HARDWICK. WORK TO BE PERFORMED UNDER THIS CONTRACT INCLUDES CONSTRUCTION OF TRAIL SURFACES, CLEARING, DITCHING, INSTALLATION OF CULVERS, SIGNING, MISCELLANEOUS STRUCTURE REPAIRS AND BRIDGE MODIFICATIONS INCLUDING DECKING AND RAILING INSTALLATION.

IT IS ANTICIPATED THAT CONSTRUCTION WILL LAST TWO CONSTRUCTION SEASONS.

2. AMOUNT OF DISTURBANCE & RISK EVALUATION

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN FOR CONTRACT STP LVRT(13) IS APPROXIMATELY **59.0 ACRES**.

IN CONJUNCTION WITH OTHER LVRT CONTRACTS, STP LVRT(13) HAS RECEIVED COVERAGE UNDER AN INDIVIDUAL PERMIT FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES. COMPONENTS OF THE PROJECT MAY BE CONSTRUCTED CONCURRENTLY WITH OTHER LVRT PROJECTS, INCLUDING STP LVRT(10), STP LVRT(11), AND STP LVRT(12).

THE MAXIMUM CONCURRENT EARTH DISTURBANCE FOR THE COMBINED LVRT PROJECTS PERMITTED UNDER THE INDC IS **16.3 ACRES**. THE MAXIMUM CONCURRENT EARTH DISTURBANCE ASSOCIATED WITH STP LVRT(13) IS **5.0 ACRES**. THE CONTRACTOR MUST COORDINATE WITH THE VTRANS RESIDENT ENGINEER AND DESIGNATED ENVIRONMENTAL SPECIALIST TO ENSURE THAT THIS LIMIT IS NOT EXCEEDED DURING THE COURSE OF THE PROJECT.

ANY MODIFICATIONS TO THE PROJECT THAT INCREASE THE RISK TO ENVIRONMENTAL RESOURCES SHALL BE EVALUATED IN ACCORDANCE WITH THE PERMIT REQUIREMENTS. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL PERMITTING.

3. MAJOR COMPONENTS & SEQUENCING

THE CONTRACTOR SHALL SEQUENCE CONSTRUCTION ACTIVITIES TO MINIMIZE THE EXTENT OF DISTURBED SOILS LEFT OPEN TO EROSION AT ANY GIVEN TIME.

DUE TO THE LINEAR NATURE OF THIS PROJECT, IT IS POSSIBLE THAT MULTIPLE PORTIONS OF TRAIL WILL BE UNDER CONSTRUCTION SIMULTANEOUSLY. EACH SITE VARIES IN NECESSARY ACTIVITIES, ALTHOUGH THE GENERAL MAJOR COMPONENTS AND SEQUENCE IS LISTED BELOW, AS NEEDED. THE CONTRACTOR SHALL DETERMINE THE FINAL SEQUENCING USED.

- ESTABLISH PERIMETER CONTROLS AND MARK PROJECT BOUNDARIES AT LOCATIONS WHERE NEEDED OR AS DIRECTED BY THE RESIDENT ENGINEER
- INSTALL SEDIMENT CONTROL MEASURES
- TREE / VEGETATION CLEARING
- CONSTRUCT TEMPORARY ACCESS ROADS AS NEEDED
- DEMOLISH AND REMOVE EXISTING INFRASTRUCTURE AS NEEDED
- CONSTRUCT PROPOSED INFRASTRUCTURE AS NEEDED
- REGRADE / BUILD FINAL TRAIL SURFACE TRAIL
- FINAL STABILIZATION WITH TRAIL MATERIAL, SEED AND RECP OR STONE FILL
- REMOVE SEDIMENT CONTROLS AND PERIMETER CONTROLS UPON ESTABLISHMENT OF FINAL STABILIZATION

4. SITE DESCRIPTION

4.1 VEGETATED BUFFERS

MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE IMPLEMENTED WHEREVER POSSIBLE.

THIS PROJECT DOES NOT RELY ON VEGETATED BUFFERS AS A MITIGATING RISK FACTOR.
CULVERT AND BRIDGE REPAIR WORK WILL OCCUR WITHIN OR IMMEDIATELY ADJACENT TO STREAM BANKS. AT SOME LOCATIONS, IN-STREAM WORK IS REQUIRED TO REPLACEMENT THE EXISTING STRUCTURES. WORK WITHIN WETLANDS AND OTHER RESOURCE AREAS HAS BEEN AVOIDED AND MINIMIZED TO THE EXTENT PRACTICABLE.

4.2 STREAM CROSSINGS

THIS PROJECT INCLUDES 24 STREAM CROSSINGS, AS DESCRIBED IN SECTION 5.1 BELOW. WORK WITHIN THE WATER IS BEING AUTHORIZED THROUGH THE VT ANR DEC RIVER MANAGEMENT PROGRAM AND THE US ARMY CORPS OF ENGINEERS.

4.3 WETLANDS

THE LVRT(13) PROJECT INVOLVES 23,500 SF OF WETLAND AND 14,500 SF OF WETLAND BUFFER IMPACTS. THE WORK WITHIN THESE AREAS IS BEING AUTHORIZED THROUGH THE VT ANR WETLANDS OFFICE AND/OR THE US ARMY CORPS OF ENGINEERS.

4.4 TOPOGRAPHY

THE TOPOGRAPHY OF THE OVERALL PROJECT AREA IS GENERALLY SLOPED FROM THE TOP OF THE RAILWAY EMBANKMENT TO THE TOE OF THE SLOPE. IN SOME CASES, THE TOE OF SLOPE IS NEAR THE EDGE OF A STREAM CHANNELS OR ROADWAY CROSSINGS. THE PROJECT IS GENERALLY LOCATED IN RURAL AREAS WITH MINIMAL SURROUNDING DEVELOPMENT.

4.5 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF A MIXTURE OF GRASSES, SHRUBS, AND TREES. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY THE PROJECT. UPON COMPLETION, THE DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES AS DESCRIBED IN THE TURF ESTABLISHMENT DETAIL, UNLESS NOTED OTHERWISE. CERTAIN EMBANKMENTS WILL BE REGRADED SUCH THAT FINAL STABILIZATION REQUIRES THE PLACEMENT OF STONE FILL.

4.6 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE. SOILS ON THE PROJECT SITE INCLUDE:

ADAMS LOAMY FINE SAND, 8 TO 15 PERCENT SLOPES, "K FACTOR" = **0.15**
BUCKLAND FINE SANDY LOAM, 15 TO 25 PERCENT SLOPES, "K FACTOR" = **0.32**
BUCKLAND FINE SANDY LOAM, 15 TO 35 PERCENT SLOPES, VERY STONY, "K FACTOR" = **0.32**
BUCKLAND FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES, "K FACTOR" = **0.32**
BUCKLAND FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES, VERY STONY, "K FACTOR" = **0.32**
BUCKLAND FINE SANDY LOAM, 35 TO 60 PERCENT SLOPES, VERY STONY, "K FACTOR" = **0.32**
BUCKLAND FINE SANDY LOAM, 8 TO 15 PERCENT SLOPES, "K FACTOR" = **0.32**
BUCKLAND FINE SANDY LOAM, 8 TO 15 PERCENT SLOPES, VERY STONY, "K FACTOR" = **0.32**
BUCKSPORT MUCK, 0 TO 2 PERCENT SLOPES, "K FACTOR" = **0.00**
CABOT SILT LOAM, 0 TO 8 PERCENT SLOPES, VERY STONY, "K FACTOR" = **0.49**
CABOT SILT LOAM, 3 TO 8 PERCENT SLOPES, "K FACTOR" = **0.43**
CABOT SILT LOAM, 8 TO 15 PERCENT SLOPES, "K FACTOR" = **0.43**
CABOT SILT LOAM, 8 TO 15 PERCENT SLOPES, VERY STONY, "K FACTOR" = **0.43**
CHARLES SILT LOAM, 0 TO 2 PERCENT SLOPES, FREQUENTLY FLOODED, "K FACTOR" = **0.43**
COLTON-DUXBURY COMPLEX, 3 TO 8 PERCENT SLOPES, "K FACTOR" = **0.28**
CROGHAN LOAMY FINE SAND, 0 TO 3 PERCENT SLOPES, "K FACTOR" = **0.24**
DUMMERSTON VERY FINE SANDY LOAM, 15 TO 35 PERCENT SLOPES, VERY STONY, "K FACTOR" = **0.37**
DUMMERSTON VERY FINE SANDY LOAM, 8 TO 15 PERCENT SLOPES, "K FACTOR" = **0.37**
IRASBURG LOAMY FINE SAND, 3 TO 8 PERCENT SLOPES, "K FACTOR" = **0.20**
IRASBURG LOAMY FINE SAND, 8 TO 15 PERCENT SLOPES, "K FACTOR" = **0.20**
MONADNOCK FINE SANDY LOAM, 15 TO 25 PERCENT SLOPES, "K FACTOR" = **0.32**
MONADNOCK FINE SANDY LOAM, 15 TO 35 PERCENT SLOPES, VERY STONY, "K FACTOR" = **0.37**
MONADNOCK FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES, "K FACTOR" = **0.32**
MONADNOCK FINE SANDY LOAM, 35 TO 60 PERCENT SLOPES, VERY STONY, "K FACTOR" = **0.37**
MONADNOCK FINE SANDY LOAM, 8 TO 15 PERCENT SLOPES, "K FACTOR" = **0.32**
MONADNOCK FINE SANDY LOAM, 8 TO 15 PERCENT SLOPES, VERY STONY, "K FACTOR" = **0.37**
MOOSILAUKE VERY FINE SANDY LOAM, 0 TO 3 PERCENT SLOPES, "K FACTOR" = **0.37**
PEACHAM MUCKY PEAT, 0 TO 8 PERCENT SLOPES, VERY STONY, "K FACTOR" = **0.43**
PODUNK FINE SANDY LOAM, 0 TO 2 PERCENT SLOPES, OCCASIONALLY FLOODED, "K FACTOR" = **0.24**
RIFLE MUCK, 0 TO 2 PERCENT SLOPES, PONDED, "K FACTOR" = **0.43**
RUMNEY FINE SANDY LOAM, 0 TO 2 PERCENT SLOPES, FREQUENTLY FLOODED, "K FACTOR" = **0.20**
SHEEPSCOT GRAVELLY FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES, "K FACTOR" = **0.15**
TUNBRIDGE-MONADNOCK COMPLEX, 15 TO 35 PERCENT SLOPES, VERY STONY, "K FACTOR" = **0.26**
URBAN LAND-ADAMS-NICHOLVILLE COMPLEX, 0 TO 8 PERCENT SLOPES, "K FACTOR" = **0.00**
VERSHIRE-DUMMERSTON COMPLEX, 8 TO 15 PERCENT SLOPES, ROCKY, "K FACTOR" = **0.36**
VERSHIRE-LOMBARD COMPLEX, 15 TO 25 PERCENT SLOPES, ROCKY, "K FACTOR" = **0.43**
VERSHIRE-LOMBARD COMPLEX, 15 TO 35 PERCENT SLOPES, VERY STONY, "K FACTOR" = **0.41**
VERSHIRE-LOMBARD COMPLEX, 8 TO 15 PERCENT SLOPES, ROCKY, "K FACTOR" = **0.43**
VERSHIRE-LOMBARD COMPLEX, 8 TO 15 PERCENT SLOPES, VERY STONY, "K FACTOR" = **0.41**
WONSQUEAK AND PONDICHERRY MUCKS, 0 TO 2 PERCENT SLOPES, "K FACTOR" = **0.32**

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING:
0.0-0.23 = LOW EROSION POTENTIAL
0.24-0.36 = MODERATE EROSION POTENTIAL
0.37 AND HIGHER = HIGH EROSION POTENTIAL

4.7 OTHER SENSITIVE RESOURCES

NO ADDITIONAL SENSITIVE RESOURCE AREAS ARE ANTICIPATED TO BE IMPACTED BY THE PROJECT.

5. DRAINAGE

5.1 RECEIVING WATERS

THIS PROJECT INVOLVES IMPROVEMENTS AT EXISTING OR REPLACEMENT STRUCTURES (CULVERT OR BRIDGE) AT 24 EPHEMERAL, INTERMITTENT, AND PERENNIAL STREAM CROSSINGS. IMPROVEMENTS AT BRIDGE 34 (STANNARD BROOK) AND BRIDGE 35 (LAMOILLE RIVER) HAVE BEEN PREVIOUSLY AUTHORIZED AS PART OF PROJECT STP LVRT(10).

MAJOR RECEIVING WATERS FOR THE PROJECT INCLUDE JOE'S BROOK, PERKINS MEADOW BROOK, AN UNNAMED TRIBUTARY TO PERKINS MEADOW BROOK, MORRILL BROOK, AN UNNAMED TRIBUTARY TO HAYNESVILLE BROOK, STEVENS BROOK, STANNARD BROOK, GREENSBORO BROOK, BAILEY BROOK, AND THE LAMOILLE RIVER (AND VARIOUS TRIBUTARIES TO IT).

5.2 DISCHARGE POINTS

DUE TO THE NATURE OF THE PROJECT AREA, THERE ARE NO DISCRETE DISCHARGE POINTS ASSOCIATED WITH THE TRAIL WORK ON THIS PROJECT. RUNOFF FROM THE PROJECT AREA WILL DRAIN OFF THE TRAIL EMBANKMENT TOWARD THE CLOSEST RECEIVING WATER, MAY ENTER THE RECEIVING WATERS IN MULTIPLE LOCATIONS.

5.3 CONVEYANCE/FLOW PATH FROM PROJECT TO WATERS

THE MAJORITY OF THE PROJECT IS NOT CURBED AND RUNOFF DRAINS OVERLAND ACROSS ADJACENT VEGETATED SIDE SLOPES BEFORE REACHING THE RECEIVING WATER. DUE TO THE NATURE OF THE PROJECT, IN-STREAM WORK WILL BE REQUIRED AT SOME SITES, THEREFORE WILL HAVE A LIMITED VEGETATED DISCONNECTION AREA. EROSION PREVENTION AND SEDIMENT CONTROL MEASURES WILL LIMIT SEDIMENT DISCHARGE AT THESE LOCATIONS.

6. EROSION PREVENTION AND SEDIMENT CONTROL MEASURES

THE MEASURES INCLUDED IN THIS PLAN ARE PROVIDED AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. IT IS EXPECTED THAT THE CONTRACTOR MAY USE THIS PLAN, WITH ADJUSTMENTS AS NECESSARY, BASED ON THEIR SPECIFIC MEANS AND METHODS OF CONSTRUCTION.

APPLYING THESE MEASURES THROUGHOUT CONSTRUCTION IS CRITICAL TO THEIR SUCCESS IN MINIMIZING SEDIMENT TRANSPORT TO THE RECEIVING WATERS. REFER TO THE DETAILS INCLUDED IN THESE PLANS AND THE DEPARTMENT OF ENVIRONMENTAL CONSERVATION'S VERMONT STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION AND SEDIMENT CONTROL FOR SPECIFIC GUIDANCE.

6.1 IDENTIFY LIMITS OF DISTURBANCE

SITE BOUNDARIES AND AREAS CONSTRUCTION EQUIPMENT CAN ACCESS SHALL BE DELINEATED.

PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES. BARRIER FENCE SHALL BE USED INSTEAD OF PROJECT DEMARCATION FENCE WITHIN 100 FEET OF A WATER RESOURCE (STREAM, BROOK, LAKE, POND, WETLAND, ETC.).

DUE TO THE LINEAR NATURE OF THE PROJECT, PDF IS NOT REQUIRED ALONG THE ENTIRE LENGTH OF THE PROJECT. AREAS WHERE PDF IS REQUIRED INCLUDES SITES WHERE BRIDGE AND CULVERT REPLACEMENT OR REPAIRS ARE BEING MADE, PAUSE PLACES ARE BEING CONSTRRUCTED, OR OTHER ACTIVITIES ARE OCCURRING BEYOND THE EXISTING TRAIL BED TOE OF SLOPE.

6.2 LIMIT CONCURRENT DISTURBANCE

LIMITING THE AMOUNT OF SOIL EXPOSED AT ONE TIME REDUCES THE POTENTIAL EROSION ON SITE. CONCURRENT EARTH DISTURBANCE CAN BE MINIMIZED THROUGH CONSTRUCTION PHASING BY ONLY OPENING UP EARTH AS NECESSARY AND EMPLOYING STABILIZATION PRACTICES IN INCREMENTAL STAGES AS PHASES CHANGE.

6.3 STABILIZE DISTURBED AREAS
6.3.1 ACCESS POINTS/ENTRANCE/EXITS

TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTORS PROGRESS SCHEDULE.

6.3.2 TEMPORARY MEASURES FOR EXPOSED AREAS DURING CONSTRUCTION

ALL AREAS OF EARTH DISTURBANCE MUST HAVE STABILIZATION IN PLACE WITHIN 14 DAYS OF INITIAL DISTURBANCE. AFTER THIS TIME, DISTURBED AREAS MUST BE STABILIZED IN ADVANCE OF ANY RUNOFF PRODUCING EVENT.

6.3.3 PERMANENT STABILIZATION AT FINAL GRADE

EXPOSED SOIL MUST BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

SEED, MULCH, FERTILIZER AND LIME SHALL BE USED TO ESTABLISH PERMANENT VEGETATION. FOR SLOPES STEEPER THAN 1:3, ROLLED EROSION CONTROL PRODUCT, TYPE I SHALL BE USED INSTEAD OF MULCH. FOR SLOPES STEEPER THAN 1:2, FINAL STABILIZATION WITH STONE RIPRAP IS PROPOSED.
STONE ARMORING OF STREAM EMBANKMENTS ARE PROPOSED TO BE STABILIZED WITH THE APPROPRIATELY SIZED STONE BASED ON HYDRAULIC MODELING, AS SHOWN IN THE PLANS.

6.4 DIVERT UPLAND RUNOFF

DIVERSIONARY MEASURES SHALL BE USED TO INTERCEPT RUNOFF FROM ABOVE THE CONSTRUCTION AND DIRECT IT AROUND THE DISTURBED AREA SO THAT CLEAN WATER DOES NOT BECOME MUDDIED WHILE TRAVELING OVER EXPOSED SOILS ON THE CONSTRUCTION SITE.

RUNOFF FROM UPGRADIENT AREAS MAY NEED TO BE DIVERTED AWAY FROM THE PROJECT AREA. THE CONTRACTOR SHALL REFER TO THE LOW RISK HANDBOOK FOR GUIDANCE.

6.5 INSTALL SEDIMENT BARRIERS

SEDIMENT BARRIERS (E.G. SILT FENCE AND EROSION LOGS) SHALL BE UTILIZED TO INTERCEPT RUNOFF AND ALLOW SUSPENDED SEDIMENT TO SETTLE OUT. THEY SHALL BE INSTALLED ON THE DOWNHILL SIDE OF CONSTRUCTION ACTIVITIES, PRIOR TO ANY UP-SLOPE WORK.

DUE TO THE LINEAR NATURE OF THE PROJECT AND THE VEGETATED CONDITION OF THE EXISTING EMBANKMENT, SEDIMENT BARRIERS ARE NOT REQUIRED ALONG THE ENTIRE LENGTH OF THE PROJECT. AREAS WHERE SEDIMENT BARRIERS ARE REQUIRED INCLUDE SITES WHERE BRIDGE AND CULVERT REPLACEMENT OR REPAIRS ARE BEING MADE, PAUSE PLACES ARE BEING CONSTRUCTED, OR OTHER ACTIVITIES ARE OCCURRING THAT DISTURB EMBANKMENT SIDE SLOPES AND COULD POTENTIALLY RESULT IN SEDIMENT BEING DISCHARGED.

WHERE REQUIRED, SEDIMENT BARRIERS WILL BE INSTALLED ALONG THE CONTOUR AND AS PROPOSED ON THE EPSC PLAN. WOVEN WIRE REINFORCED SILT FENCE SHALL BE USED INSTEAD OF SILT FENCE WITHIN 100 FEET UPSLOPE OF WETLANDS AND RECEIVING WATERS. ADDITIONAL SEDIMENT BARRIERS ARE TO BE DEPLOYED AS NECESSARY DURING CONSTRUCTION TO MINIMIZE SEDIMENT DISCHARGE OR AS DIRECTED BY THE RESIDENT ENGINEER.

6.6 SLOW DOWN CHANNELIZED RUNOFF

CHECK STRUCTURES SHALL BE UTILIZED TO REDUCE THE VELOCITY, AND THUS THE EROSIVE POTENTIAL, OF CONCENTRATED FLOW IN CHANNELS.

TEMPORARY STONE CHECK DAMS MAY BE REQUIRED IN CONJUNCTION WITH WATER CONTROL AT CULVERT REPAIR AND REPLACEMENT SITES.

7. CONSTRUCT PERMANENT CONTROLS

PERMANENT STORMWATER TREATMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH PERMIT CONDITIONS.

PERMANENT STORMWATER TREATMENT DEVICES ARE NOT ANTICIPATED TO BE NEEDED OR DESIGNED.

8. DEWATERING

DISCHARGE FROM DEWATERING ACTIVITIES THAT FLOWS OFF OF THE CONSTRUCTION SITE MUST NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF THE VERMONT WATER QUALITY STANDARDS. DEWATERED STORMWATER OR GROUNDWATER MUST BE FILTERED AND ROUTED IN A MANNER THAT DOES NOT RESULT IN VISIBLY TURBID DISCHARGES TO WATERS.

DEWATERING OF SURFACE WATER WITHIN A COFFERDAM IS ANTICIPATED DURING THE REPAIR OR REPLACEMENT OF STRUCTURES ADJACENT TO WETLANDS AND WATERWAYS. THE FILTER BAG DETAIL HAS BEEN INCLUDED AS A POTENTIAL TREATMENT MEASURE FOR THIS PURPOSE, HOWEVER THE SPECIFIC MEANS FOR TREATMENT OF DISCHARGE SHALL BE PROVIDED BY THE CONTRACTOR. ALL COSTS FOR TREATMENT OF DISCHARGE SHALL BE PAID FOR UNDER CONTRACT ITEM 900.645, “SPECIAL PROVISION (EROSION CONTROL, ALL INCLUSIVE)”.

9. OFF-SITE AREAS

OFF-SITE WASTE AND BORROW AREAS HAVE NOT BEEN IDENTIFIED FOR THIS PROJECT. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY AND PERMIT, AS NECESSARY, ANY OFF-SITE AREAS THAT ARE NEEDED IN ACCORDANCE WITH STANDARD SPECIFICATIONS 105.25 - 105.28. ALL EROSION PREVENTION AND SEDIMENT CONTROL MEASURES NECESSARY FOR WASTE, BORROW, AND STAGING AREAS OUTSIDE THE PROJECT LIMITS SHALL BE PAID FOR PER 105.29 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

VEHICLE AND EQUIPMENT STORAGE AREAS OR AREAS ADJACENT TO CONSTRUCTION TRAILERS OR OTHER HIGH TRAFFIC AREAS SHALL BE COVERED WITH GEOTEXTILE FABRIC AND 12” OF GRAVEL. FOLLOWING COMPLETION OF CONSTRUCTION, ALL NON-NATIVE MATERIALS SHALL BE REMOVED FROM THE STAGING AREA. COMPACTED, RUTTED, OR OTHERWISE DISTURBED SOILS SHALL BE TILLED, RAKED, SEEDED AND MULCHED.

ERODIBLE MATERIALS STOCKPILED WITHIN THE MATERIAL STORAGE AREAS SHALL BE ISOLATED WITH SILT FENCE OR OTHER ACCEPTABLE SEDIMENT BARRIER. SOIL STOCKPILED ON THE SITE SHALL BE SEEDED AND MULCHED.

10. WINTER CONSTRUCTION

CONSTRUCTION ACTIVITIES MAY CONTINUE INTO THE WINTER CONSTRUCTION SEASON, DEPENDING ON ACTUAL FIELD AND WEATHER CONDITIONS. IF ACTIVITIES ARE ON-GOING BETWEEN OCTOBER 15 AND APRIL 15, THE CONTRACTOR SHALL FOLLOW REQUIREMENTS FOR WINTER CONSTRUCTION, AS DEFINED IN SPECIFIC PERMIT CONDITIONS AND AS FOLLOWS:

- ENLARGED ACCESS POINTS, STABILIZED TO PROVIDE FOR SNOW STOCKPILING.
- LIMITS OF DISTURBANCE MOVED OR REPLACED TO REFLECT BOUNDARY OF WINTER WORK.
- DEVELOPMENT OF A SNOW MANAGEMENT PLAN THAT INCLUDES:
  - ADEQUATE STORAGE AND CONTROL OF MELT-WATER
  - STORAGE OF CLEARED SNOW TO BE PLACED DOWN SLOPE OF DISTURBED AREAS AND OUT OF STORMWATER TREATMENT STRUCTURES
- AREAS OF DISTURBANCE WITHIN 100 FT OF A WATERBODY MUST HAVE REINFORCED (WOVEN WIRE) SILT FENCE INSTALLED ACROSS THE SLOPE, DOWNGRADIENT OF THE EARTH DISTURBANCE. ALTERNATIVELY, REGULAR, NON-WOVEN WIRE SILT FENCE MAY BE USED IF COMBINED WITH EROSION CONTROL BERM, EROSION LOG, OR STRAW WATTLE.
- DRAINAGE STRUCTURES MUST BE KEPT OPEN AND FREE OF SNOW AND ICE DAMS.
- SILT FENCE AND OTHER PRACTICES REQUIRING EARTH DISTURBANCE MUST BE INSTALLED AHEAD OF FROZEN GROUND.
- MULCH TO BE APPLIED AT A MINIMUM OF 2 INCHES DEPTH WITH 80-90% COVERAGE.
- AREAS OF DISTURBED SOILS MUST BE STABILIZED PRIOR TO ANY RUNOFF-PRODUCING EVENT, WITH THE FOLLOWING EXCEPTION:
  - STABILIZATION IS NOT REQUIRED IF THE WORK IS OCCURRING IN A SELF-CONTAINED EXCAVATION WITH NO OUTLET AND A DEPTH OF 2 FT OR GREATER (OPEN UTILITY TRENCHES), PROVIDED THAT ANY DEWATERING, IF NECESSARY, IS CONDUCTED AS REQUIRED.
- PRIOR TO STABILIZATION, SNOW OR ICE MUST BE REMOVED TO LESS THAN 1" THICKNESS.
- USE STONE TO STABILIZE AREAS WHERE CONSTRUCTION VEHICLE TRAFFIC IS ANTICIPATED.

11. INSPECTION & MAINTENANCE

INSPECTION AND MONITORING OF THE PROJECT’S EPSC MEASURES SHALL BE CONDUCTED IN ACCORDANCE WITH STANDARD SPECIFICATION 653.04 MONITORING EROSION PREVENTION AND SEDIMENT CONTROL PLAN, ALONG WITH PERMIT SPECIFIC INSPECTION REQUIREMENTS.

THE CONTRACTOR SHALL PROVIDE A COPY OF THEIR INSPECTION FORM AS PART OF THEIR EPSC PLAN.

ALL EPSC MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD-UP. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

vhb

PROJECT NAME: SWANTON - ST JOHNSBURY
PROJECT NUMBER: STP LVRT(13)

FILE NAME: z20f239_EPSC_narrative.dgn
PROJECT LEADER: E.P.DETRICK
DESIGNED BY: C.K.FORD
EPSC NARRATIVE (SHEET 2 OF 2)

PLOT DATE: 4/30/2021
DRAWN BY: C.K.FORD
CHECKED BY: E.P.DETRICK
SHEET 54 OF 93